FINDING OF NO SIGNIFICANT IMPACT

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

Francis E. Warren Air Force Base, Wyoming

Pursuant to provisions of the National Environmental Policy Act (NEPA), 42 U.S. Code 4321 *et seq*, implementing Council on Environmental Quality (CEQ) Regulations, 40 Code of Federal Regulations (CFR) 1500-1508, and 32 CFR Part 989, *Environmental Impact Analysis Process*, the Air Force conducted an assessment of the potential environmental consequences of numerous demolition, renovation, upgrade, and construction projects that have been programmed for future fiscal years in order to support and sustain the mission of Francis E. Warren Air Force Base (FEWAFB).

FEWAFB is headquarters to the 90th Space Wing, the Air Force Space Command unit that operates FEWAFB and its associated missile field. The 90th Space Wing is responsible for missile alert facilities and launch facilities supporting Minuteman III missiles. Missiles are deployed in an area encompassing 12,600 square miles in the states of Colorado, Nebraska, and Wyoming. FEWAFB occupies 5,866 acres of federally owned land on the western edge of the city of Cheyenne in southeastern Wyoming.

This Programmatic Environmental Assessment (PEA), attached and incorporated by reference in this finding, considers the potential impacts of the proposed actions on the natural and human environment.

PROPOSED ACTIONS

The proposed actions include the demolition of buildings 654, 841, 945, 949, 1037, 1200, 1260, and 1458; the renovation of buildings 325, 284, 151, 220, 230, 236, 332, and 333; an addition to building 465; the consolidation and renovation of buildings 323 and 324; the upgrade of Missile Drive; and the construction of a Hot Cargo Pad and Firearms Training Simulator (FATS).

Under the No Action alternative, the proposed actions would not occur. Selecting the No Action alternative would allow deteriorated buildings to remain a maintenance burden, prevent the upgrade of substandard buildings and infrastructure, limit training opportunities, and fail to correct safety hazards.

SUMMARY OF FINDINGS

The analyses of the affected environment and environmental consequences of implementing the proposed actions presented in the PEA conclude that no significant impacts would result. No significant cumulative impacts would result from activities

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associated with the projects, when considered in conjunction with past, present, and future projects within the project areas.

Seven areas of environmental consequences evaluated in the PEA were determined to have the potential to result in minor impacts.

a) Noise

A short-term increase in noise would be generated by the proposed demolition, renovation, upgrade, and construction projects. Increased traffic in the areas of new development would create long-term increases in noise; however, it would not be in excess of other similar developments on the installation. Impacts to noise would be insignificant.

b) Earth Resources

There would be permanent alterations to topography associated with the proposed construction projects; however, due to the relatively small footprints of the proposed facilities, impacts to earth resources would be insignificant.

c) Air Quality

A short-term increase in fugitive dust would be generated by the proposed demolition and construction projects. Cheyenne and the surrounding area are currently in attainment and the proposed actions would not affect this status. Impacts to air quality would be insignificant.

d) Water Resources

A short-term increase in construction-related storm water discharges would occur at the proposed construction sites. A storm water construction permit would be needed if construction activities disturb more than one acre. Construction contractors would be required to provide erosion and sediment control measures in accordance with federal, state, and local laws and regulations. Impacts to water resources would be insignificant.

e) Cultural Resources

There is potential for minor impacts to cultural resources as a result of demolition, renovation, and construction activities. Per comments from the Wyoming State Historic Preservation Office (SHPO) (Appendix A), a formal determination of eligibility for buildings 841, 945, 949, 1200, and 1037 would be necessary before demolition could be considered. The Base Historic Preservation Officer (BHPO) would consult with the SHPO to determine eligibility, and necessary measures would be taken prior to demolition activities. Regarding proposed renovation projects in the Historic District, the BHPO would consult with the SHPO to ensure the design elements of the proposed

renovation projects are compatible with the character of the district. All potential construction sites would be surveyed prior to construction. If artifacts are found during project activities, a work stoppage would occur until the BHPO can examine the artifacts. Providing the standards for rehabilitation and guidelines for visual compatibility are followed, impacts to cultural resources would be insignificant.

f) Wildlife and Vegetation

The proposed construction projects would permanently remove vegetation in the footprints of the facilities, including sidewalks, parking areas, and access roads. Additionally, an increase in the spread of noxious weeds may result from construction activities. Best Management Practices would be followed and reclamation of disturbed areas with native plant species would begin as soon as possible during and/or following construction to reduce the possibility of erosion and to replace vegetation impacted by construction. All construction activities would comply with the Migratory Bird Treaty Act. Impacts to wildlife and vegetation would be insignificant.

g) Hazardous Materials, Hazardous Waste, Solid Waste

An increase in solid and hazardous wastes would be generated by demolition, renovation, and construction projects. There would be minor short-term disposal issues for waste containing lead-based paint and/or asbestos generated by the proposed renovation and demolition projects. Long-term impacts to hazardous materials, hazardous waste, and solid waste would be insignificant.

FINDING OF NO SIGNIFICANT IMPACT

Based upon my review of the facts and analyses contained in the attached PEA, conducted in accordance with the provisions of NEPA, the CEQ Regulations, and 32 CFR Part 989, I conclude that the proposed actions would not have significant environmental impacts, either individually or cumulatively with other ongoing projects at FEWAFB, would not involve an element of high risk or uncertainty on the human environment, and effects on the quality of the human environment are not highly controversial. Accordingly, an Environmental Impact Statement is not required. The signing of this Finding of No Significant Impact (FONSI) completes the environmental impact process.

APPROVED BY

Michael J. Carey

MICHAEL J. CAREY, Colonel, USAF
Commander, 90th Space Wing

17 Dec 05
Date

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1.0 INTRODUCTION

This Programmatic Environmental Assessment (PEA) addresses proposals by Francis E. Warren Air Force Base (FEWAFB) in accordance with the FEWAFB General Plan (2005) to move forward with numerous proposed renovation, construction, and demolition projects that have been programmed for future fiscal years in order to support and sustain its mission. This PEA will address the environmental impacts associated with the renovation, construction, demolition, infrastructure upgrades, and landscaping improvements associated with these projects, and establish a baseline for future environmental assessments.

The 90th Space Wing (90 SW) is responsible for Missile Alert Facilities (MAFs) and Launch Facilities (LFs) supporting Minuteman III missile sites. There are numerous associated units in both direct and indirect support of this mission. FEWAFB maintains a close relationship with local communities and provides substantial direct and indirect economic benefits to the surrounding region.

FEWAFB occupies 5,866 acres, or approximately nine square miles, of federally owned land located on the western edge of the city of Cheyenne in southeastern Laramie County, Wyoming. The base is approximately 11 miles north of the Colorado border (Figure 1.0-1). It is approximately 100 miles north of Denver, Colorado, and 45 miles east of Laramie, Wyoming. Interstate 25 (I-25) intersects Interstate 80 (I-80) about three miles south of Gate 1.

1.1. Purpose and Need for the Action

The FEWAFB Capital Improvements Program contained within the base General Plan identifies construction projects necessary to repair, upgrade, or replace existing facilities and infrastructure. In an effort to support and sustain its current and future mission, FEWAFB has programmed a series of new facilities, roads, and parking lots; facility demolitions and renovations; and other similar actions (i.e., road maintenance, landscaping, etc.). These actions would provide modern facilities to enhance the quality of life for personnel stationed at FEWAFB, and ensure mission sustainability.

1.2. Scope of the Environmental Assessment

The scope of this PEA is to assess the environmental impacts of proposed facility and associated infrastructure construction (i.e., sidewalks, parking lots, roads, utilities, and landscaping), demolitions, renovations, and other related activities (e.g., road maintenance, etc.). The analysis will utilize zones to divide the base into separate land parcels in order to address environmental analysis in a more focused and efficient manner. There are three zones: Zone 1: South of Missile Drive; Zone 2: North of Missile Drive and South of Central Avenue; and Zone 3: North of Central Avenue (Figure 1.3-1). Impacts will be addressed for each zone in relation to the following resource areas: Air Installation Compatible Use Zones (AICUZ) and noise, land use, earth resources, air quality, water resources, vegetation and wildlife, cultural and archaeological resources, health and safety, outdoor recreation, solid waste, hazardous materials and waste, infrastructure, transportation, and environmental justice. The cumulative impacts of the proposed actions in each zone will also be addressed.

1.3. Regulatory Compliance

This PEA shall adhere to current Air Force (AF) guidelines as codified in 32 CFR 989, *Air Force Environmental Impact Analysis Process* (EIAP). Other AF Instructions (AFI) providing guidance are: AFI 32-7064, *Integrated Natural Resources Management*; AFI 32-7065, *Cultural Resources Management*; and AFI 32-7066, *Environmental Baseline Surveys in Real Estate Transactions*. Additional references for conducting an EA are found in the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190, 42 U.S.C. 4321-4347) and the Council on Environmental Quality (CEQ) Implementing Regulations (40 CFR Parts 1500-1505). Additionally, adherence to Presidential Executive Orders (EO) 11988, *Floodplain Management*; EO 11990, *Protection of Wetlands*; EO 13287, *Preserve America*; and EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* is required. Other environmental statutes regulating the proposed actions are the Clean Water Act and the Clean Air Act. Additionally, the National Historic Preservation Act (NHPA) applies to actions impacting or potentially impacting facilities listed on the National Register of Historic Places or those eligible for listing. Cumulative impacts must also be considered and addressed as part of the evaluation process.

2.0 PROPOSED ACTIONS AND ALTERNATIVES

This chapter discusses the proposed actions and alternatives, including the No Action alternative, which would allow the AF to meet its purpose and need for agency action. Other alternatives are presented that were evaluated but not carried forward because they do not meet selection criteria.

2.1. Descriptions of the Proposed Actions and Alternatives

The FEWAFB Capital Improvements Program identifies construction projects necessary to repair, upgrade, or replace existing facilities and infrastructure. In an effort to support and sustain its current and future mission, FEWAFB has programmed the construction of a series of new facilities, roads, and parking lots; facility demolitions and renovations; and associated actions (i.e., road maintenance, landscaping, etc.). The proposed actions are associated with one or more of three zones identified in Section 1.3. In addition to the proposed actions, the No Action alternatives are presented for consideration. Detailed descriptions for each of the proposed actions are as follows:

Zone 1: South of Missile Drive

The locations of the proposed actions in Zone 1 are shown on Figure 2.1-1.

Demolish Building 841: This facility was constructed in 1952 and comprises 21,248 square feet. Status: The facility functions as the Education Center, but is considered substandard. The existing Education Center is located in a semi-permanent wood and stucco Korean War era building. This facility has severely deteriorated over the years and is a maintenance burden for the installation. Over a quarter of a million dollars has been invested in its upkeep in recent years alone. Due to its poor layout and configuration, classrooms and other functions within the structure cannot be easily enlarged. Interior lighting is insufficient, access to computer local area network (LAN) connectivity is limited, and the interior room configuration cannot be used efficiently. Due to lack of space, active duty personnel promotion testing, and other large-scale testing events must be conducted at Laramie County Community College in Cheyenne. The facility does not conform to energy conservation standards or current electrical codes. The building's mechanical systems are old, deteriorating, costly to maintain, and provide inefficient heating and air conditioning. Distance learning is severely restricted due to lack of satellite telecommunications systems to support the multitude of courses being offered. The current facility is not conducive to an effective and comfortable learning environment.

- No Action: The base would maintain the status quo. The Education Center would continue to operate in Building 841. The facility would not be demolished. This alternative would leave a substandard facility on the building inventory and deplete maintenance funds.

Demolish Building 945: This facility was constructed in 1953 and is comprised of 21,248 square feet. Status: The facility is used as a temporary Firearms Training Simulator (FATS). Building 945 has deteriorated over the years and is a maintenance burden for the installation. This facility contains lead-based paint and asbestos. The building utilities are outdated including the electrical system, plumbing, and communication wiring. In addition, the building is not energy efficient, and does not have a heating, ventilation, and air conditioning (HVAC) system. The base is proposing to consolidate its weapons training functions in the northwestern portion of the installation near the new firing range. As part of this consolidation, the base is proposing to construct a new FATS facility in this area. There are no historic facilities available

on the installation that are of adequate size and configuration to accommodate this function. Land use compatibility is also a factor in siting this facility. The proposed construction of the FATS facility is discussed later in the document.

- No Action: The base would maintain the status quo. The FATS would continue to operate in building 945. Building 945 would not be demolished. This alternative would leave a substandard facility on the building inventory, using up valuable square footage and depleting maintenance funds.

Demolish Building 949: This facility was constructed in 1952 and is comprised of 3,680 square feet. Status: The facility houses the military working dog kennels. Building 949 has deteriorated over the years and is a maintenance burden for the installation. The facility has no fire suppression system and is a fire safety hazard. The building is not energy efficient and has outdated utility systems (electrical, parking, communications, and no HVAC) that are difficult to maintain. The base is proposing to relocate the kennels to another facility (not yet identified).

- No Action: The base would maintain the status quo. Building 949 would not be demolished. This alternative would leave a substandard facility on the building inventory, using up valuable square footage and depleting maintenance funds.

Demolish Building 1037: This facility was constructed in 1941 and is comprised of 3,158 square feet. Status: The facility is vacant due to its deteriorated condition and outdated infrastructure (electrical, plumbing, communications, not energy efficient, and no HVAC system). This building contains lead-based paint and asbestos, and does not have a fire suppression system.

- No Action: The base would maintain the status quo. Building 1037 would remain vacant. This alternative would leave a substandard facility on the building inventory, using up valuable square footage and depleting maintenance funds.

Demolish Building 1200: This facility was constructed in 1952 and is comprised of 25,536 square feet. Status: The facility is used as a temporary storage for family day care providers on the installation. The Security Forces Squadron maintains a few temporary classrooms in this facility as well. This building contains lead-based paint and asbestos. Due to its deteriorated condition, poor layout, and outdated infrastructure (electrical, HVAC, plumbing, and lack of energy efficiency), the base is proposing to relocate the existing functions and demolish the facility.

- No Action: The base would maintain the status quo. Building 1200 would not be demolished. This alternative would leave a substandard facility on the building inventory, using up valuable square footage and depleting maintenance funds.

Demolish Building 1260: This facility was constructed in 1973 and is comprised of 4,844 square feet. Status: This facility houses communications storage functions. The facility has outdated electrical systems, plumbing, communications, no HVAC, and is not energy efficient. The base is proposing to adapt buildings 332 and 333, both historic facilities, to create a communications campus. This function would be moved to the communications campus after completion of the renovations. The renovations of buildings 332 and 333 are discussed later in the document.

- No Action: The base would maintain the status quo. Building 1260 would not be demolished. This alternative would leave a substandard facility on the building inventory, using up valuable square footage and depleting maintenance funds.

Upgrade Primary Missile Route (Missile Drive): This resurfacing project would provide for needed maintenance and repair to accommodate heavy vehicles and dangerous loads traveling on and off the installation. Missile Drive is an integral part of FEWAFB that is used to transport missiles on and off of the installation in addition to providing access to a large portion of the base. Resurfacing is routinely necessary on all roads to maintain their functionality.

- No Action: The base would maintain the status quo. The Primary Missile Route would not be resurfaced. By not resurfacing Missile Drive, FEWAFB runs the risk of being unable to support its mission and would limit access to base facilities to authorized personnel.

Zone 2: North of Missile Drive and South of Central Avenue

The locations of the proposed actions in Zone 2 are shown on Figure 2.1-2.

Demolish Building 654 (Coal Conveyance Platform): The heat plant, constructed in 1981, was originally constructed to use coal in each of its boilers; however, three new natural gas boilers were installed in 1998 to replace the original units. The coal conveyance platform is no longer required. Status: This equipment is obsolete and unused.

- No Action: The base would maintain the status quo. The Coal Conveyance Platform would not be demolished. This alternative would cause the facility to further deteriorate and deplete maintenance funds.

Demolish Building 1458: This facility was constructed in 1970 and is comprised of 480 square feet. Status: The facility is part of the family campground complex adjacent to Crow Creek. The facility has deteriorated and is a maintenance burden for the installation. Utility systems are outdated (electrical, plumbing, and communications), and the facility contains lead-based paint and asbestos materials.

- No Action: The base would maintain the status quo. Building 1458 would not be demolished. This alternative would leave a substandard facility on the building inventory, using up valuable square footage space criteria and depleting maintenance funds.

Renovate Building 325 (Dining Facility): The facility was constructed in 1908 and is comprised of 14,579 square feet. Status: This historic facility is substandard and requires a significant renovation. The facility has numerous issues that are adversely affecting the quality of food service for base personnel. Proposed work includes upgrades to utility systems including power distribution, water, steam, heat, and sewer. Proposed work also includes enhancements to heating and ventilation, and replacement of ceiling, floor, and wall tiles.

- No Action: The base would maintain the status quo. Building 325 would not be renovated. This alternative would cause the facility to remain substandard and limit quality improvements to food service.

Renovate and Construct Addition to Connect Buildings 323 and 324 (Consolidated Fire Department): Building 323 was constructed in 1909 and comprises 10,385 square feet. Building 324 was constructed in 1909 and comprises 11,903 square feet. Status: Building 323 is used for miscellaneous storage, and building 324 serves as the primary fire department. A secondary fire station is located in building 1250, making fire department operations inefficient. Proposed work includes construction of a vehicle bay between buildings 323 and 324, exterior modifications to connect the three facilities, and interior renovations.

- No Action: The base would maintain the status quo. The fire department would continue to operate out of two separate facilities. There would be no new construction or renovation. This alternative would continue to cause ineffective and inefficient disbursement of vehicles and

manpower, which results in longer response times during multiple alarms. In addition, there would continue to be a lack of facilities for female fire fighters. The deficiency of space within the communication center would continue to hamper the communications process during emergency responses.

Construct Addition to Building 465 (Child Development Center [CDC]): The CDC was constructed in 1999 and is comprised of 19,983 square feet. Status: The facility requires an addition because size requirements for the CDC have increased since its completion. When originally developed, the scope of the CDC was based on guidance available at the time. Since then, AF guidance has changed and allows for larger CDCs in an effort to accommodate a greater population of eligible children. The existing CDC is 15 percent smaller than it should be. The new requirements for CDCs are detailed in AFI 34-248 (October 1999).

- No Action: The base would maintain the status quo. The CDC would not be modified. This alternative would prevent active duty military and civilian employee families from receiving much needed quality child care services. Waiting lists for these services would continue to grow, and AF CDC size requirements would not be met.

Renovate Building 284: Building 284 was constructed in 1905 and is comprised of 11,526 square feet. Status: The facility is vacant and has been for several years. The facility is listed on the National Register of Historic Places and is included in the Historic District. The base is required to renovate the facility for use as administrative space under the provisions of a Memorandum of Agreement (MOA) with the Wyoming SHPO (Appendix C).

- No Action: The base would maintain the status quo. Building 284 would not be renovated and would remain vacant. This alternative would violate the provisions of the MOA. This building is listed on the National Register of Historic Places and should be renovated for use.

Renovate Building 151: Building 151 was constructed in 1940 and comprises 48,067 square feet. Status: This facility is the former base gymnasium and is currently used for miscellaneous activities. The facility is listed on the National Register of Historic Places and is included in the Historic District. The base is proposing to renovate the facility for use as a community center.

- No Action: The base would maintain the status quo. Building 151 would not be renovated and would remain vacant. This building is listed on the National Register of Historic Places and should be renovated for use.

Renovate Buildings 220, 230, and 236 (Historic Dormitories): Buildings 220, 230, and 236 were constructed in the early 1900s. Status: This project would be a continuation of dormitory renovations and improvements to bring them up to Tri-Service and AF standards.

- No Action: The base would maintain the status quo. The historic dormitories would not be renovated and would continue to operate in their existing condition. The AF dormitory configuration guidelines would continue to be unmet, and the quality of life, morale, productivity, and career satisfaction of dormitory residents would be degraded.

Renovate Buildings 332 and 333: Building 332 was constructed in 1909 and comprises 38,052 square feet, and building 333 was constructed in 1909 and comprises 17,371 square feet. Status: The recent completion of a new facility for Minuteman III maintenance operations has left these facilities mostly vacant. These facilities are listed on the National Register of Historic Places and are included in the Historic District. The base is proposing to renovate these facilities to accommodate communications functions.

- No Action: The base would maintain the status quo. Buildings 332 and 333 would not be renovated and would remain substantially underutilized. These facilities are listed on the National Register of Historic Places and should be renovated for use.

Zone 3: North of Central Avenue

The locations of the proposed actions in Zone 3 are shown on Figure 2.1-3.

Construct Hot Cargo Pad: The proposed hot cargo pad would provide a 3,200 square foot asphalt parking space, lightning protection, and other amenities for the storage of transient conventional munitions or low-level radioactive material. Status: The existing hot cargo pad must be relocated due to land use conflicts. The base is proposing to relocate the hot cargo pad from its current location on Central Avenue to a more isolated location northwest of building 4330 (Figure 2.1-3). The proposed hot cargo pad construction site is limited to a location that must have a 1,250-foot safety clear zone and be accessible from current roadway infrastructure. The current hot cargo pad location does not meet all clear zone requirements; moving the location slightly to the north will correct the deficiencies and is the only location available to meet all requirements.

- No Action: The base would maintain the status quo. The hot cargo pad would remain in its current location and would continue to present a hazard to vehicles traveling on Central Avenue.

Construct Firearms Training Simulator (FATS): The base is proposing to consolidate its weapons training functions in the northwestern portion of the installation near the new firing range. As part of this consolidation, the base is proposing to construct a new FATS in this area (Figure 2.1-3). The temporary FATS is located in building 945 in the southeastern portion of the installation. There are no historic facilities available on the installation that are of adequate size and configuration to accommodate this function. Land use compatibility is also a factor in siting this facility. The new FATS would be a fully enclosed training facility for vehicles and simulated weapons.

- No Action: The base would maintain the status quo. The FATS would continue to be housed in building 945, leaving the weapons training functions separated by several miles and preventing the demolition of a substandard facility.

Upgrade Primary Missile Route (Central Avenue): This resurfacing project would provide needed maintenance and repair to accommodate heavy vehicles and dangerous loads traveling on and off the installation. Central Avenue is an integral part of FEWAFB that is used to transport missiles on and off of the installation in addition to providing access to a large portion of the base. Resurfacing is routinely necessary on all roads to maintain their functionality.

- No Action: The base would maintain the status quo. Central Avenue would not be upgraded. By not resurfacing Central Avenue, FEWAFB runs the risk of being unable to support its mission and would limit access to base facilities to authorized personnel.

2.2. Alternatives Considered but Eliminated from Further Discussion

As part of the environmental analysis, NEPA requires the proponent to evaluate other alternatives. The following are alternatives that have been considered but eliminated from further discussion.

Zone 1: South of Missile Drive

Renovate Building 841: Building 841 has severely deteriorated. Because of its age, poor layout, and outdated infrastructure it would not be cost-effective to upgrade the facility to the level required to adequately achieve the mission of the Education Center or accommodate another function. Additionally, the availability of historic facilities to accommodate other base functions makes renovation of this facility impractical.

Renovate Building 945: Building 945 has deteriorated and, due to its age and outdated infrastructure, would not prove to be a cost-effective renovation project that would upgrade the facility to a level required to adequately accommodate another function. Additionally, the availability of historic facilities to accommodate other base functions makes renovation of this facility impractical.

Renovate Building 949: The base is proposing to relocate the military working dog kennels, which are currently housed in this facility. The poor condition of this facility does not lend itself to renovation for another function. Additionally, the availability of historic facilities to accommodate other base functions makes renovation of this facility impractical.

Renovate Building 1037: This facility is not being utilized by the installation. Building 1037 has severely deteriorated and, due to its age and outdated infrastructure, would not prove to be a cost-effective renovation project that would upgrade the facility to a level required to adequately accommodate another function. Additionally, the availability of historic facilities to accommodate other base functions makes renovation of this facility impractical.

Renovate Building 1200: Building 1200 has deteriorated and, due to its age and outdated infrastructure, would not prove to be a cost-effective renovation project that would upgrade the facility to a level required to adequately accommodate another function. Additionally, the availability of historic facilities to accommodate other base functions makes renovation of this facility impractical.

Renovate Building 1260: The facility has deteriorated and, due to its age and outdated infrastructure, would not prove to be a cost-effective renovation project that would upgrade the facility to a level required to adequately accommodate another function. Additionally, the availability of historic facilities to accommodate other base functions makes renovation of this facility impractical. The base is proposing a communications campus in the Historic District. Once the campus is completed, building 1260 will no longer be needed.

Zone 2: North of Missile Drive and South of Central Avenue

Renovate Building 1458: Building 1458 has deteriorated and is no longer needed to support activities at the family campground. Renovation of this facility for another function is impractical due to its location and the availability of historic facilities to accommodate other base functions.

Building 325 (Dining Facility)

- New Construction: Construction of a new dining facility would cost significantly more than renovating the existing facility. The current facility, with the appropriate renovations, is considered to be sufficient to sustain the dining facility's operations.
- Demolition: This facility is listed on the National Register of Historic Places and is included in the Historic District. Due to the requirement of the National Historic Preservation Act to adapt

and use historic buildings, demolition of this facility would not be feasible. Additionally, the facility has not deteriorated to a point that would make demolition necessary.

Building 465 (Child Development Center [CDC])

- New Construction: Since the existing CDC was constructed in 1999 and is still in good condition, it would be impractical to construct a new facility. The current facility, with the proposed addition, is considered sufficient to sustain CDC operations.
- Renovate Larger Existing Building: The location of the existing CDC was chosen because of its land use compatibility. The facility is in close proximity to the Gate 1, the new fitness center, the athletic fields, and a large percentage of military family housing. The location is such that noise from the playground does not constitute a nuisance to administrative offices or other work areas. Additionally, utilizing an historic facility would not be practical due to the probable presence of lead-based paint and asbestos, which would have to be abated prior to utilizing the facility for child care activities. The current facility, with the proposed addition, is considered sufficient to sustain CDC operations.

Building 284

- Renovate for Education Center: There is insufficient space in building 284 to accommodate the requirements of the Education Center.
- Renovate for Wing Headquarters: The wing has spent considerable resources on force protection projects around its current location, building 250, since 9/11. It would not be cost effective to move the wing at this point and invest more money into force protection projects at building 284.
- Renovate for 90th Security Forces Group Headquarters: There is insufficient space in building 284 to accommodate the newly formed security forces group.

Building 151

- Renovate for Education Center: Building 151 was constructed in 1940 and would present similar obstacles to renovation as the existing Education Center facility. Due to the infrastructure needed to support the Education Center (LAN, HVAC), building 151 cannot accommodate the Education Center without substantial modification of the facility. The base is proposing to construct a new facility that will be more suitable for the needs of the proposed Education Center (addressed in a separate EA).
- Renovate for Wing Headquarters: The wing has spent considerable resources on force protection projects around its current location, building 250, since 9/11. It would not be cost effective to move the wing at this point and invest more money into force protection projects at building 151.

Demolish Buildings 220, 230, and 236 (Historic Dormitories): These facilities are listed on the National Register of Historic Places and are included in the Historic District. Due to the requirement of the National Historic Preservation Act to adapt and use historic buildings, demolition of these facilities would not be feasible. Additionally, these facilities have not deteriorated to a point that would make demolition necessary. The current facilities, with the appropriate renovations, are considered to be sufficient to sustain the dormitories.

Buildings 332 and 333

- Demolish: These facilities are listed on the National Register of Historic Places and are included in the Historic District. Due to the requirement of the National Historic Preservation Act to adapt and use historic buildings, demolition of these facilities would not be feasible. Additionally, these facilities have not deteriorated to a point that would make demolition

necessary. The current facilities, with the appropriate renovations, are considered to be sufficient to sustain the communications functions.

- New Construction: Construction of new facilities to house the communications campus is made impractical by the availability of historic facilities that can accommodate these functions.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad: An area south of the Peacekeeper maintenance complex was identified as a potential site for the hot cargo pad; however, it did not meet the quantity-distance (Q-D) arc criteria. This location would continue to present a hazard to people traveling on Central Avenue.

Construct FATS: Possible alternatives on the south side of the installation include demolishing building 945 (current FATS location) and constructing the new facility on site. This location is separated from the new firing range by a substantial distance, and would not permit the collocation of the FATS and the firing range. A variety of land use constraints severely limits alternatives for construction of the FATS on the south side of the base, including closed landfills, quantity-distance (Q-D) arcs for explosives, hilly terrain, bluffs associated with Crow and Diamond Creeks, sensitive habitats, wetlands, housing, and other community land uses.

The intersection of Commissary Road and Artillery Road was identified as a potential site for the FATS; however this location is separated from the new firing range by a substantial distance. There do not appear to be any feasible locations in the central portion of the base, and the facilities in the Historic District would not be compatible with the FATS. Other potential locations on the north side of the base are restricted by hilly terrain and Q-D arcs for explosives.

3.0 AFFECTED ENVIRONMENT

3.1. Introduction

This chapter describes the existing environmental and human resources that would potentially be affected by the proposed actions and alternatives. The environment described in this chapter is the baseline for the consequences that will be presented in Chapter 4. The Region of Influence (ROI), or study area for each resource category is FEWAFB and its surroundings. Most of the baseline information was gathered from existing FEWAFB documentation. As previously mentioned, the analysis will be summarized when significant variations exist using zones established to divide the base into separate land parcels in order to address environmental analysis in a more focused and efficient manner. There are three zones: Zone 1: South of Missile Drive; Zone 2: North of Missile Drive and South of Central Avenue; and Zone 3: North of Central Avenue.

3.2. Noise and Air Installation Compatible Use Zones

Air Force bases are generally required to develop an Air Installation Compatible Use Zones (AICUZ) study. The AICUZ study is designed to protect base citizens from excessive noise exposure and accident potential associated with AF flying activities and to prevent degradation of the AF's mission capability by promoting compatible land use planning. FEWAFB does not operate any airfields associated with the use of fixed-wing aircraft and has been exempted from preparing an AICUZ study (Figure 3.2-1).

Zone 1: South of Missile Drive

The installation does maintain an airfield located in Zone 1 consisting of approximately 11 acres. The airfield and facilities are limited to the use and support of flying operations for seven UH-1N rotary-wing aircraft. The airfield facilities consist of one Visual Flight Rule (VFR) helipad, one limited use VFR helipad, five helicopter parking spots, and two intersecting grass runways. The airfield is generally compatible with surrounding area land uses. Accident Potential Zones (APZs) have been established for the airfield to limit the presence of obstructions and potential hazards to flight operations. The APZs include restrictions to development to reduce the potential for accidents. The approach and departure zones for the helicopters are fully contained within the installation boundaries (Figure 3.2-1A).

Zone 2: North of Missile Drive and South of Central Avenue

In addition to the APZs associated with the on-base helicopter airfield, the Cheyenne Airport's two approach/departure flight paths, as defined by Federal Aviation Administration (FAA) clear zone criteria, overlap the base boundary and are potential adjacent off-installation constraints that may influence future base development (Figure 3.2-1B).

Zone 3: North of Central Avenue

As previously mentioned, the Cheyenne Airport's two approach/departure flight paths, as defined by FAA clear zone criteria, overlap the base boundary and are potential adjacent off-installation constraints that may influence future base development (Figure 3.2-1C).

Noise

The major sources of noise on the base include grounds maintenance activities, local base motor vehicle traffic, vehicular traffic on adjacent I-25, base helicopter operations, and fixed-wing aircraft operating from the Cheyenne Airport. The location of helicopter operations in the southern portion of the base has a limited noise impact to the rest of the installation. There is no data at this time to quantify the amount of noise generated by these operations.

3.3. Land Use

Natural land uses and land uses that reflect human modification are considered in this section. Natural land use classifications include wildlife areas, forests, and other open or undeveloped areas. Human land uses include residential, commercial, industrial, utilities, agricultural, recreational, and other developed uses. Management plans, policies, ordinances, and regulations determine the types of uses that are allowable, or protect specially designated or environmentally sensitive uses.

The existing land use patterns at FEWAFB were established during the installation's development and use as an Army post throughout the early 1900s. Existing land use patterns continue to follow the patterns established by the base more than a century ago. Additional facility development and supporting infrastructure have evolved over time as missions and requirements have changed or expanded. There are 1,225 buildings and approximately 38 miles of roads on FEWAFB. Buildings and roads are primarily clustered in the southern half of the base. The highest density of roads and buildings are north of Crow Creek, on the opposite side of the railroad tracks that roughly parallel the Crow Creek corridor. This area includes the Historic District with over 200 historic buildings, a golf course, cemetery, medical clinic, parade grounds, and mixed-use administrative, industrial, and community facilities. To the south of Crow Creek, there are large tracts of open space, an industrial/mission complex (including a helicopter operations complex and weapons storage area) along Diamond Creek, several landfills, and a housing complex with associated buildings along the southern boundary of the base. There are a few buildings within the floodplain, including the heat plant and its fuel stores, and the liquid propane tank farm. Crow Creek is bordered by railroad tracks on one side and by Missile Drive on the other, and there are several road crossings.

Existing land uses are identified that could potentially be affected by the proposed actions. Table 3.3-1 shows the land use classifications for FEWAFB. Figure 3.3-1 provides a map of existing land use at FEWAFB.

Zone 1: South of Missile Drive

There is a moderate amount of development containing a mix of airfield, industrial, administrative, community, housing, water, and open space land uses (Figure 3.3-1A).

Zone 2: North of Missile Drive and South of Central Avenue

There is heavy development due to its central location containing mission, industrial, administrative, community, medical, housing, outdoor recreation, water, and open space land uses (Figure 3.3-1B).

Zone 3: North of Central Avenue

This area is relatively undeveloped and contains large tracts of open space land use in addition to some mission, industrial, and outdoor recreation land uses (Figure 3.3-1C). Most of the area has been used historically for firing range activities, from small arms to light artillery.

Table 3.3-1: Land Use Classifications for FEWAFB

Zone	Grounds Categories	Land Use Categories	Description
1	SI	Airfield	Helipad, slide landing area, aircraft parking area, and airfield clear areas
1, 2, 3	I	Mission	Aircraft and missile maintenance hangars and facilities; aircrew, missile, and maintainer training facilities; and flying and missile unit operations (and associated aircraft maintenance units)
1, 2, 3	SI	Industrial	Civil engineer shops; fire stations and training; supply facilities; training ranges; transportation, maintenance, and operation facilities; and utility operations
1, 2	I	Administrative	Military and civilian personnel offices; family services and support centers; security forces operations; wing and group headquarters; and communication centers
1, 2	I	Community	Exchange and commissary facilities; banking facilities; collocated clubs; education centers; base library; chapel facilities; and child development centers
2	I	Medical	Medical clinics, dental clinics, and bio-environmental engineering
1, 2	I	Housing (Accompanied)	Family housing and temporary housing
1, 2	I	Housing (Unaccompanied)	Dormitories and visitor personnel quarters
1, 2, 3	I, SI	Outdoor Recreation	Golf course; athletic fields and courts; recreation equipment checkout and storage; paintball course; swimming pools; and park and picnic areas
1, 2, 3	UI	Open Space	Conservation and preservation areas; safety and security zones; and buffer areas
1, 2	UI	Water	Approximately 27 acres of surface water exist on base

I = Improved, SI = Semi-improved, UI = Unimproved

FEWAFB has completed an Integrated Natural Resource Management Plan (INRMP). The plan is designed to support the military mission and protect and enhance land upon which training missions are dependent, identify recreational opportunities within the base, and use an ecosystem management approach for management of the base's natural resources.

3.4. Earth Resources

3.4.1. Climate

The climate in Cheyenne is semi-arid. Adjacent FEWAFB experiences moderately warm summers and cold winters. The average annual temperature is 46° F. The average daily maximum temperatures are 83° F in July (with an average summer low of 48° F) and 26° F in January. Temperature extremes range from -34° F to 100° F. Prevailing winds are from the northwest to west throughout the year, with secondary peaks in wind frequency from south to north, spring through autumn. The average wind speed is 13 miles per hour. Annual precipitation is approximately 14 inches. Winter is the driest season, with precipitation of less than one inch. Late spring and early summer are the wettest times of the year, with just over two inches average monthly precipitation.

3.4.2. Geology

FEWAFB lies within the High Plains section of the Great Plains Physiographic Province. Rocks within the region range in age from Pre-Cambrian to recent and are composed primarily of shale with small amounts of sandstone, siltstone, and limestone. The base is in Seismic Zone 1, which has minor seismic event probability. The uppermost geologic unit at the base consists of unconsolidated Quaternary deposits composed of clay, silt, sand, gravel, cobbles, and boulders. These deposits are generally less than 25 feet thick across the base, with the thickest sections being along stream channels. The Quaternary deposits overlay the Tertiary-age Ogallala Formation.

The Ogallala Formation consists of a heterogeneous mixture of clay, silt, sand, and gravel and is approximately 200 feet thick in the area of the base. Some of the sand and gravel layering may be cemented with calcium carbonate, forming discontinuous sandstone and conglomerate beds. The Ogallala sedimentary units are believed to have been deposited under fluvial (streams and rivers) and localized eolian (wind blown) conditions in a humid, alluvial fan formation environment.

3.4.3. Topography

The topography of FEWAFB is characterized by broad plateaus that are nearly flat in the historic central, more developed part of the base and increase in slope along the ridgelines and along Crow Creek. Elevation ranges from approximately 6,080 feet in the southeastern corner of the base to 6,365 feet in the northern portion, where there is a predominant east-west ridgeline known as Base Line Ridge (Figure 3.4.3-1).

3.4.4. Soils

On-base soil classifications are shown on Figure 3.4.4-1. The predominant soil series on base is classified texturally as loamy, where average topsoil depth ranges from four to six inches. The subsoil is composed primarily of alluvial clay and extends from a depth of approximately six to 36 inches. None of these characteristics are considered constraints, such as would be the case with a rock or loose gravel subsurface. Throughout the base, pavements reduce soil infiltration significantly. The subsoil is capped with approximately 38 miles of bituminous asphalt roadways, 90,000 square feet of concrete roadways, and 1.9 million square feet of asphalt parking lots.

Zone 1: South of Missile Drive

See Figure 3.4.4-1A for soil types in Zone 1.

Zone 2: North of Missile Drive and South of Central Avenue

See Figure 3.4.4-1B for soil types in Zone 2.

Zone 3: North of Central Avenue

See Figure 3.4.4-1C for soil types in Zone 3.

3.4.4.1. Radon

Radon is naturally occurring in the soils of the base. Overexposure to radon, which emits an ionizing radiation, can result in serious heath effects, such as, carcinogenic, teratogenic, or mutagenic effects. The U.S. Environmental Protection Agency (EPA) recommends measures to reduce radon levels in occupied buildings when the annual exposure exceeds 4 picocuries/liter (4pCi/L). Radon emissions are considered when designing new base facilities to ensure radon levels do not exceed recommended annual levels or are controlled to reduce levels to appropriately safe health conditions. Part of the Air Force Radon Assessment and Mitigation Program (RAMP) was to prioritize structures having the highest radon levels and mitigate the risk.

A 1992 report identified 90 structures that had radon levels above 4pCi/L. Of those structures, most were demolished and were replaced as the new Atlas housing area. The rest of the homes having elevated radon levels were in the Military Construction Project (MCP) and Capehart areas, and have had active sub-slab depressurization radon mitigation systems installed. The Atlas housing area had passive radon mitigation systems installed and a representative sampling effort indicated that the passive system worked sufficiently to maintain radon levels at an acceptable level. Designs for new base facilities, particularly those inhabited by children, must be designed with passive radon mitigation systems to ensure radon levels will not be elevated. Sampling and analysis must also be accomplished to verify that the passive systems are sufficient. If found to be insufficient, the systems will need to be made active by installing fans, then be resampled and analyzed to verify that the fans were sized appropriately to reduce radon to acceptable levels.

3.5. Air Quality

FEWAFB is located in Laramie County within the Metropolitan Cheyenne Intrastate Air Quality Control Region (AQCR) as designated by the EPA. The EPA has designated the air quality of the base as attainment for all criteria air pollutants. The EPA established National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants. The NAAQS are maximum concentrations above which adverse effects on human health may occur. Areas of the country where air pollution levels persistently exceed the NAAQS may be designated as non-attainment.

Air pollution sources located in attainment areas require a Title V operating permit if they have the potential to emit greater than 100 tons per year (tpy) of any criteria air pollutant, 10 tpy of any single hazardous air pollutant, or 25 tpy of all hazardous pollutants combined. FEWAFB has the potential to emit in excess of 100 tpy of the criteria air pollutant nitrogen oxide (NOX). Nitrogen oxides are produced in the emissions of vehicle exhausts and from power stations. In the atmosphere, nitrogen oxides can contribute to formation of photochemical ozone (smog), can impair visibility, and have health consequences. The base is currently pursuing a Synthetic Minor permit from the State of Wyoming in order to avoid Title V status. The Synthetic Minor permit will be based on accepting federally enforceable operational limits to stay below 100 tpy of NOX. Activities impacted by these operational limits include the heat plant (fueled by natural gas and propane) and generators used throughout the base. Applications have been submitted and are under review at the Wyoming Department of Environmental Quality (WDEQ). The permit is not expected to impact the base mission; however, it will be a consideration for any future activities that will generate additional NOX emissions.

Emission sources on the base include: point sources such as boilers, generators, abrasive blasting units, paint booth operations, fuel storage and transfer, gasoline storage and dispersing, welding, solvent cleaning or operations, landfill/pollution remediation venting, and woodworking activities; fugitive sources such as chemical or pesticide applications, fire fighter training, small arms firing, detonations, surface coating for facilities or roadways; specific air pollutants may include carbon monoxide, nitrogen oxides, lead particulate, other particulate matter with diameter of less than 5 microns (PM 5), sulfur oxides, volatile organic compounds and hazardous air pollutants (HAPS).

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3.6. Water Resources

Water resources include surface and groundwater resources. Surface waters include lakes, rivers, and streams and are important for a variety of reasons, including economic, ecological, recreational, and human health. Groundwater comprises the subsurface hydrogeologic resources of the base's physical environment.

3.6.1. Surface Water

Two reservoirs, four small ponds, portions of three perennial streams, and one ephemeral stream are present on FEWAFB (Figures 3.6.1-1, 3.6.1-1A, 3.6.1-1B, and 3.6.1-1C). The Pearson Reservoirs were constructed in two parts in 1957 and 1970. The reservoirs are made up of two basins connected by a culvert to control water flow between the basins. Water levels are maintained by storm water runoff, raw water from the city of Cheyenne, and pumped well water. The South Pearson Reservoir is also supplied by flow from a spring. The Pearson Reservoirs are used for recreation and irrigation of the base golf course, and are managed as trout fisheries. Lake Centennial Reservoir was constructed in 1988 as a flood control basin intended to hold storm water runoff from the city of Cheyenne. Lake Centennial is managed as a warm water fishery.

Table 3.6-1: Permanent Lakes Located on FEWAFB

Surface Water	
Description	**Acres**
Lake Centennial	4.5
North Pearson Reservoir	12.6
South Pearson Reservoir	9.3
Source: F. E. Warren AFB General Plan, 2005	

The installation is located within the Crow Creek watershed, which is part of the South Platte River Basin. Crow Creek, a perennial surface water, flows from west to east across the southern half of the base, exiting the base near the Missile Drive gate. Diamond Creek, a perennial tributary of Crow Creek, flows from southwest to northeast across the southwest portion of the base before draining into Crow Creek. An unnamed ephemeral tributary of Crow Creek roughly parallels Diamond Creek flowing southwest to northeast across the southern portion of the base. Dry Creek is mapped as a perennial stream by the U.S. Department of Interior, Geologic Survey (North Cheyenne) topographic map; however, the portion of Dry Creek on FEWAFB does not flow in all years.

The creeks are bordered by thin riparian zones. Historically, two types of human disturbance negatively affected wetlands along these drainages: old refuse dumps were established and remain along portions of Crow Creek, and growth of riparian vegetation was controlled for security reasons. Riparian vegetation control was discontinued in 1989 and these zones are now established with scattered cottonwoods, willow shrub, and herbaceous wetland plants. Crow Creek and Diamond Creek are impacted by a limited amount of industrial activity before they enter the base. Upstream influences include: residential developments, rangeland with managed livestock operations, and city of Cheyenne waste water treatment.

3.6.2. Groundwater

The High Plains Aquifer is the primary source for domestic and stock water supply for most of the water wells in and around the base. The High Plains Aquifer is comprised of the Quaternary-age alluvial and terrace deposits and the Tertiary-age Ogallala Formation. Where saturated with groundwater, the Quaternary deposits are hydraulically connected to the Ogallala Formation.

Depth of the groundwater in the area is variable but generally exceeds five feet. Groundwater depth is nearer the surface near streams and deeper further from discharge areas. In the southern portion of the base, depth to the water table ranges from ten to 40 feet below the surface. The direction of groundwater flow in the shallow aquifer zone is generally toward the discharge areas of Crow Creek, Diamond Creek, and the unnamed tributary to Crow Creek. Groundwater on the installation is recharged locally through infiltration of precipitation. Groundwater is naturally discharged through evaporation in the riparian areas; flow into streams; and by springs and seeps near streams.

3.6.3. Wetlands and Floodplains

Wetlands are defined by the U.S. Army Corps of Engineers (USACE) and the EPA based on the presence of wetland vegetation, wetland hydrology, and hydric soils with certain land area considerations. Wetlands and other surface water features, which may include intermittent and perennial streams, are generally considered Waters of the United States by the USACE, and under their definition of “jurisdictional waters/features”, are protected under Section 404 of the Clean Water Act. A wetland survey of FEWAFB was completed in December 2004. Wetlands total approximately 64.7 acres and open water bodies total approximately 35 acres on the base. Of these features, jurisdictional wetlands and open water bodies within Waters of the United States encompass approximately 62.3 and 4.2 acres, respectively (Figure 3.6.1-1). Generally, both wetlands under federal jurisdiction and base-identified wetlands are delineated on local maps. Federal jurisdiction of wetland delineation is accomplished through consultation with USACE. Wetland areas that receive the most management attention are located along Crow and Diamond Creeks and at the western end of North Pearson Reservoir. Meadows and riparian vegetation situated within these wetlands are extremely important wildlife habitats. Meadow areas along Crow and Diamond Creeks support large colonies of the Colorado butterfly plant and small populations of Preble’s meadow jumping mouse. A majority of the special status species (threatened, endangered, regulated) known to occur on the base are associated with wetlands or other Waters of the United States habitats. Surface water and wetland parts of the riparian areas are under the regulatory requirements and authority of the USACE. Before a project is initiated that may involve a jurisdictional wetland, the USACE must be consulted to determine whether a Section 404 permit is required, and whether the project can be accomplished in the proposed area.

The portions of FEWAFB that are located within the 100-year floodplain generally follow the same boundaries that encompass the wetlands (Figure 3.6.1-1). Periodic flooding is a major consideration for proposed development and environmental management activities that may occur in the floodplain. Executive Order 11988 requires that development in floodplains be avoided.

Zone 1: South of Missile Drive

Surface water is present in Crow Creek, Diamond Creek, the unnamed tributary, and a small creek bed pond. Floodplains and wetlands present generally follow the creek drainage areas (Figure 3.6.1-1A).

Zone 2: North of Missile Drive and South of Central Avenue

Lake surface water is dominant in this zone in addition to a large portion of Crow Creek that flows through the southern portion of Zone 2. Wetlands and floodplains follow Crow Creek drainage patterns as well as lakes and connecting lake lowlands (Figure 3.6.1-1B).

Zone 3: North of Central Avenue

This zone is primarily grassland with small creek drainage patterns and upland wetlands. Water presence is more ephemeral in nature, based on rain periods (Figure 3.6.1-1C).

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3.7. Vegetation and Wildlife

This section focuses on plant and animal species or vegetation types that are typical or are an important element of the ecosystem, are of special category importance (of special interest due to societal concerns), or are protected under state and/or federal law.

3.7.1. Vegetation

The installation is comprised of four primary vegetation communities: 1) shortgrass prairie, 2) riparian, 3) wetlands, and 4) species associated with urban or disturbed areas. The shortgrass prairie community (high plains grasses) dominates the base, covering over half the area. The largest concentrations of the grasses are found in the northern sectors of the base and blue grama (*Bouteloua gracilis*), needle-and-thread grass (*Stipa comata*) and western wheatgrass (*Elymus smithii*) are common, along with fringed sagewort (*Artemisia frigida*).

The riparian communities are found in narrow strands along Crow Creek and its tributaries, and are associated with interspersed wetland areas. A variety of trees and shrubs are common in this vegetation community including plains cottonwood tree (*Populus deltoides*), crack willow shrub/tree (*Salix fragilis*) and the peachleaf willow shrub/tree (*Salix amygdaloides*); additional willow species are found that may be classified here or placed in a wetland community.

The wetland community, along with the riparian community, are the most environmentally significant vegetation types on the base due to habitat that supports both the threatened Colorado butterfly plant (*Gaura neomexicana coloradensis*) and the Preble's meadow jumping mouse (*Zapus hudsonius preblei*). The wetland community is found in existing drainages and along the edges of lakes and ponds. Many wetland areas contain shrub willows such as sandbar willow (*Salix exigua*), mountain willow (*Salix monticola*) and strapleaf willow (Salix eriocephala). Other wetland species found are: wiregrass (*Juncus balticus*), Nebraska sedge (*Carex nebrascensis*), creeping spikerush (*Eleocharis palustris*), soft-stem bulrush (*Scirpus validus*), and broad-leaf cattail (*Typha latifolia*).

The urban and disturbed areas contain roadways, railroad track, parking lots, industrial buildings, military family housing and specialized facilities, park/recreational land, parade grounds, landfill areas and previously disturbed open fields. Lawns are associated with numerous housing and industrial facilities. Several areas within the Historic District and administrative areas have ornamental or shade tree plantings. The urban forest is an integral feature and a special component of the Historic District. There are no wooded areas on the base that are larger than five acres; however, the age and size of numerous trees and small tree stands are important forestry management considerations. Many of the previously disturbed areas have been replanted with crested wheatgrass (*Agropyron cristum*) for soil and erosion control and remain the dominant species in these areas.

Noxious weeds and their management are an important element in the base's vegetation communities. Noxious weeds are defined as those species that require control in accordance with the Federal Noxious Weed Act and the installation has legally required noxious weed management obligations based on the parameters and species present on the base. Five noxious weeds are found on base in widely dispersed locations, and are generally intermixed with native vegetation. Noxious weeds are found dispersed within populations of the Colorado butterfly plant and habitat for Preble's meadow jumping mouse. The major noxious species are: Canada thistle (*Cirsium avense*), common hound's tongue (*Cynoglossum officinale*), field

bindweed (*Convolvulus arvensis*), Dalmatian toadflax (*Linaria dalmatica*) and leafy spurge (*Euphorbia esula*). Noxious weed management techniques may be precluded in some vegetation areas due to special considerations for plant, invertebrate, and vertebrate species of concern, water quality considerations, and human health issues. Noxious weed management considerations must be included when involving ground disturbance and potential future grounds management requirements.

3.7.2. Wildlife

The diverse habitats on FEWAFB support a variety of birds, mammals, reptiles, amphibians and invertebrates common to the region. Most visibly, a relatively large herd of pronghorn antelope (*Antilocapra americana*) remains on base year-round and their population size ranges from 125 to approximately 175 animals. These animals are a visible link with the base's history as a western military installation and demonstrate that a modern Air Force and its defense operations can co-exist with a very observable species of wildlife. The pronghorn are free ranging and occur in most areas and habitats on the base, including the developed urban areas. The pronghorn have adapted to the high level of human activity on base and can be seen grazing on house and administrative building lawns, the golf course and parade grounds. Pronghorn are the most important large ungulate on the installation and represent a unique national asset that is not only highly popular with the base community, but also the local community residents and visitors to the installation.

Numerous migratory and seasonal bird species protected by the Migratory Bird Treaty Act may occur or potentially occur at FEWAFB or in the adjacent area. Generally, projects located in previously disturbed or industrial land use areas will have little or no effect on migratory bird species. However, all projects and their site locations should plan for and identify the possible presence of migratory bird species. If migratory bird species are encountered, protection from either disturbance or removal of their habitat must be evaluated by the U.S. Fish and Wildlife Service (USFWS) and measures taken to mitigate any habitat loss or to protect the species. Consultation with the base Environmental Management Flight can help determine possible affected species types and help resolve or direct actions for possible disturbance issues.

Recent wildlife management plans identify numerous wildlife species that occur or potentially occur on the base including some of the more common species such as rainbow trout (*Salmo gairdneri*), tiger salamander (*Ambystoma tiginum*), western painted turtle (*Chrysemys picta belli*), black-tailed rabbit (*Lepus californicus melanotis*), raccoon (*Procyon lotor hirtus*), coyote (*Canis latrans*) and mule deer (*Odocoileus hemionus*).

The rich combination of wetlands and High Plains prairie grasses provide excellent bird habitat. Numerous bird surveys have been conducted on the installation and adjacent land areas periodically since the 1980s. These surveys have documented at least 200 species of birds that have been observed on the base. Observed migratory species including water fowl such as the tundra swan (*Cygnus columbianus*), wood duck (*Aix sponsa*) and Canada goose (*Branta canadensis*) were recorded, in addition to numerous hawk species (*Buteo ssp*). Other birds of prey observed include bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*) and turkey vulture (*Cathartes aura*). Canada geese, mallard duck (*Anas platyrrhynchos*), rock doves (*Columbia livia*), European starlings (*Sturnus vulgaris*), and house sparrows (*Passer domesticus*) are known to occur year-round on the installation.

Fish are found in North and South Pearson Reservoirs, Lake Centennial, and Crow and Diamond Creeks. The Pearson Reservoirs have been stocked with rainbow trout, brook trout

(*Salvelinus fontinalis*) and Snake River trout (*Oncorhynchus clarki*). Lake Centennial has been stocked with largemouth bass (*Micropterus salmoides*), crappie (*Pomoxis ssp*.) and bluegill perch (*Lepomis machrochirus*). Brook trout are known to breed in both Crow and Diamond Creeks.

3.7.3. Threatened and Endangered Species (Includes Special Interest Species)

Under Section 7 of the Endangered Species Act, the Air Force is mandated to use their authority to ensure actions are approved, funded, or carried out to protect both flora and fauna that are considered threatened and endangered species or proposed for listing as threatened or endangered species on the installation. Two threatened species present on the base are Preble's meadow jumping mouse (*Zapus hudsonius preblei*) and Colorado butterfly plant (*Gaura neomexicana coloradensis*). No other threatened or endangered vertebrate species or vegetation species are known to inhabit the base (Figure 3.7.3-1).

The Colorado butterfly plant was listed as threatened in October 2000 and is found in the riparian areas of the base. Moist meadows along Crow and Diamond Creeks and the unnamed drainage along the southwestern portion of the base support significant Colorado butterfly plant populations (2000 plant census survey estimated approximately 7,700 on base). Two of the largest known populations of the 26 known remaining populations in Wyoming, Colorado, and Nebraska occur on FEWAFB. The base has established a Colorado butterfly plant research natural area and has cooperative agreements with the USFWS and the Nature Conservancy to further protect and manage the plant populations found on base.

The base's Crow Creek drainage area also contains habitat suitable to support the Preble's meadow jumping mouse. Preble's meadow jumping mouse was listed as threatened in May 1998. This small native mouse subspecies has been found in very limited numbers along the Crow Creek riparian corridor. The species appears to be in decline, possibly due to habitat loss, degradation, and fragmentation. Other factors affecting Preble's meadow jumping mouse may include pesticide and herbicide use, livestock disturbances of riparian areas, urban development, and inadequacy of existing regulatory measures. Historical loss of riparian wetlands may be the largest cause of decline for this species.

Although not found on base in a wild state, the black-footed ferret (*Mustela nigripes*) exists in a captive setting. A species native to this region of Wyoming, the black-footed ferret is considered the rarest of North American mammals. As part of the National Species Recovery Plan, FEWAFB has been and is projected to remain an active partner with the USFWS and other cooperating federal and state agencies in protecting and managing this very unique species. Black-footed ferrets are brought to the installation from off-base breeding facilities to a pre-release conditioning program on base. The on-base facility provides the opportunity for the ferrets to interact and adjust to free-ranging conditions prior to their reintroduction into the wild. This reintroduction project is of high public interest and, due to the special protective status of the ferrets, all activities that could affect the pre-conditioning program must be coordinated with the base Environmental Management Flight.

Table 3.7.3-1: Threatened and Endangered Species in the Area or Potentially in the Area of FEWAFB

Common Name	Scientific Name	Status
Black-footed ferret	Mustela nigripes	E
Preble's meadow jumping mouse	Zapus hudsonius preblei	T
Colorado butterfly plant	Gaura neomexicana coloradensis	T
Greenback cutthroat trout	Oncorhynchus clarki stemias	T
Ute ladies' tresses orchid	Spiranthes diluvialis	T
Bald eagle	Haliaeetus leucocephalus	T
(E) Federally Endangered, (T) Federally Threatened		

Table 3.7.3-2: Federal and State of Wyoming Species of Concern Occurring in the Area or Potentially in the Area of FEWAFB *

Common Name	Scientific Name
Mountain plover	Charadrius montanus
Swift fox	Vulpes velox
Black-tailed prairie dog	Cynomys ludovicianus
Burrowing owl	Athene cunicularia
Yellow-billed cuckoo	Coccyzus americanus
* The above list is provided for decision makers and the public to aid in the determination of the species priority in their need for conservation attention. These species are rare, endemic, disjunct, threatened, or otherwise biologically sensitive, but have not been federally accepted as threatened or endangered.	

Zone 1: South of Missile Drive

This zone possesses large habitat areas for the Preble's meadow jumping mouse and the Colorado butterfly plant. These habitat areas are predominantly located in low drainage areas (Figure 3.7.3-1A).

Zone 2: North of Missile Drive and South of Central Avenue

In addition to Zone 1, this zone possesses large habitat areas for the Preble's meadow jumping mouse and the Colorado butterfly plant. These habitat areas are predominantly located in low drainage areas (Figure 3.7.3-1B).

Zone 3: North of Central Avenue

The pre-release conditioning facility for black-footed ferrets is in Zone 3 (building 2277). No other threatened and endangered species have been identified in this area (Figure 3.7.3-1C).

3.8. Health and Safety

Operational and safety constraints at FEWAFB result from airfield safety and explosives safety siting criteria. Existing and future development at FEWAFB must be compatible with heliport operations and other mission-related activities. Factors influencing development decisions include clear zones and other imaginary surfaces for navigable airspace that require safeguarding against aircraft accidents, aircraft noise generation, and explosive safety constraints.

3.8.1. Airfield Clearance

Clearance criteria related to the design and layout of airfields (heliport) is provided in Unified Facilities Criteria (UFC) 3-260-01, which recently superceded Air Force Manual 32-1123, *Airfield and Heliport Planning and Design*. The Air Force has established standards to define imaginary surfaces for navigational airspace surrounding the airfield and identifies additional criteria that control development within these areas.

The on-base airfield facilities for the 37th Helicopter Flight's (37 HF) seven UH-1N aircraft consist of one Visual Flight Rule (VFR) helipad, one limited use VFR helipad, five aircraft parking spots, and one multi-directional helicopter Slide Takeoff and Landing (STOL) training area. The Cheyenne Airport's two approach/departure zones overlap the base boundary and are potential off-installation constraints that may have an impact on future base development (Figure 3.2-1).

3.8.2. Explosive Safety Zones

All development impacted by explosive safety zones must comply with AFMAN 91-201, *Explosive Safety Standards*. The storage and handling of high explosives create unique safety hazards. To address these hazards, designated areas classified as explosive safety quantity-distance (Q-D) zones have been designed to safeguard the base population and civilian community from potential explosions. Within these zones, certain separation distances are mandated to minimize explosive hazards. These clear zones include the area within a safety arc surrounding an explosive storage facility and are depicted in Figure 3.8.2-1.

Zone 1: South of Missile Drive

See Figure 3.2-1A for accident potential zones for helicopters and aircraft. In addition, Zone 1 possesses a cluster of explosive safety Q-D arcs surrounding several facilities in the southwest corner of this zone (Figure 3.8.2-1A).

Zone 2: North of Missile Drive and South of Central Avenue

There are explosive safety Q-D arcs overlapping in the northern portion of the zone along Central Avenue. The explosive safety Q-D arcs are generated in Zone 3 and overlap into Zone 2 (Figure 3.8.2-1B).

Zone 3: North of Central Avenue

This zone has a significant number of explosive safety Q-D arcs predominately located in the southern half of the zone with access to Central Avenue (Figure 3.8.2-1C).

3.8.3. Unexploded Ordnance (UXO)

FEWAFB has been the site of over 100 years of military operations. Some of these operations included use of high explosives. The northern part of the base was used extensively as an impact area for various munitions, such as mortars and projectiles. In recent history, mortars and artillery fuses have been discovered on base. If it is suspected that a possible UXO hazard has been found, personnel will cease activities and report the suspected UXO hazard to the Wing Command Post immediately (reporting the location along with any other information that may be helpful to the investigators). Known or suspected UXO areas have been fenced and/or posted with UXO warnings.

3.8.4. Security Clear Zones

The weapons storage area (WSA) generates substantial (1,250 feet) Q-D clear zones in the southwestern quadrant of the base. The stage storage area (SSA) (1,565 feet), explosive ordnance disposal area (2,500 feet), Minuteman III missile transfer area (1,370 feet), hot cargo pad (1,250 feet), and firing ranges (1,700 feet) all generate significant Q-D clear zones in the northern portion of the base. Following coordination and approval, the hot cargo pad Q-D clear zone will expand to 1,313 feet. The security clear zone surrounding the WSA is defined by dual fencing. This area also lies within the WSA Q-D arc.

An explosives site plan (ESP) is required for any facility that handles or stores explosive ordnance. The ESP must be approved through a preliminary and a final approval process. The DoD Explosives Safety Board (DDESB) is the final approval authority for proposed explosive facilities.

3.8.5. Off-Installation Constraints

FEWAFB, Laramie County, and the city of Cheyenne have been working together, in conjunction with the Metropolitan Planning Organization (MPO), formerly the Cheyenne Area Transportation Planning Process, since the early 1990s to update the 1992 Cheyenne Area Development Plan. As a result, a series of sub-area plans have been developed that create a vision, goals, and a future land use plan for the Cheyenne area. Although extensive planning has been done, off-base development continues to present several constraints to FEWAFB.

The future land use map in the West Cheyenne Plan (the sub-area plan that addresses land uses to the north, south, and west of the base) depicts “mixed-use/urban reserve” land uses south and adjacent to FEWAFB. This land is currently undeveloped. This land use category provides for various urban land uses such as residential, commercial, light industrial, open space, and public. This is a potential constraint due to noise and over flight impacts from the helicopter operations that occur along the southern edge of the base. Any type of residential development immediately south of Happy Jack Road would be impacted by these operations. Compatible land uses such as open space buffers, lower density warehouse, distribution, or industrial uses were suggested by FEWAFB in the planning process and are noted in the plan; however, the plan identifies future residential development in the area. Residential development adjacent to the base boundary also creates encroachment issues for FEWAFB.

Laramie County’s future land use map depicts “rural density” residential land uses (five to ten acres per dwelling unit) to the north and west of the base and “urban density” development to the south and the northwest corner. Residential land uses adjacent to the base boundary create encroachment issues.

3.9. Outdoor Recreation

There are 432 acres of land designated for outdoor recreation. The following recreational activities and facilities are available on base for authorized personnel: golf, athletic fields and courts, recreation equipment checkout and storage, paintball, swimming, parks, and picnic areas. The most predominant outdoor recreational land use is the 18-hole golf course. A new sports complex including softball and soccer fields is under development east of the new fitness center (Building 475). Several smaller outdoor recreational use areas are scattered throughout family housing and the main base (Figure 3.3-1).

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3.10. Cultural and Archaeological Resources

Cited here as a key reference for consideration when undertaking any type of action(s) concerning existing building renovations, demolition, construction, infrastructure, and/or landscaping improvements, the National Historic Preservation Act of 1966 (16 U.S.C. 470h-2[a]) describes the applicable responsibilities. "The heads of all Federal agencies shall assume responsibility for the preservation of historic properties which are owned or controlled by such agency. Prior to acquiring, constructing, or leasing buildings for purposes of carrying out agency responsibilities, each Federal agency shall use, to the maximum extent feasible, historic properties available to the agency in accordance with EO 13006, *Locating Federal Facilities On Historic Properties In Our Nation's Central Cities,* issued May 21, 1996 (61 Federal Register [FR] 26071). Each agency shall undertake, consistent with the preservation of such properties and the mission of the agency and the professional standards established pursuant to section 101(g) of this Act, any preservation, as may be necessary to carry out this section." In addition to the requirement to use historic properties, AF Handbook (AFH) 32-1084, *Facility Requirements*, establishes the allowable space criteria per person for the installation, and FEWAFB considerably exceeds the established criteria. The solution to this problem is to demolish non-historic facilities that, due to their outdated infrastructure and deteriorated condition, are no longer considered suitable facilities. All of the facilities proposed for demolition in this PEA fit this description.

To further clarify historic preservation guidelines, the following general historical parameters are presented and may be useful as background when reviewing the proposed actions for each building. Generally, buildings must be 50 years old to be eligible for the National Register of Historic Places, unless they have "exceptional significance." Most of the buildings proposed for demolition in this PEA were built between 1952 and 1973. The earliest buildings (841, 945, 949, and 1200) are, therefore, 53 to 54 years old and could be eligible for the National Register. However, the Air Force has determined that these buildings are not eligible because the period between 1947 (the end of WWII and the Air Force takeover of FEWAFB) and 1958 (the beginning of the missile era) is not considered a significant period in the base's history. During this period, FEWAFB was a training base for technicians. A formal determination of National Register eligibility will be coordinated with Wyoming SHPO prior to demolition. Buildings 1260 (1973) and 1458 (1970) are only plus or minus 35 years old. Building 1037, constructed in 1941, is a World War II temporary building. It is covered by a nationwide Programmatic Agreement between the Department of Defense, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers [NCSHPO], which allows it to be demolished after notifying the State Historic Preservation Officer of the intent to demolish.

The base has 214 well-preserved and maintained historic structures. Two hundred eight of these historic buildings are located within the central core of the base in the Fort D. A. Russell National Historic District designated in 1969 under the provisions of the National Historic Preservation Act (NHPA) (Figure 3.10-1). The significance of this one-of-a-kind national asset was further recognized in 1976, when the Historic District was designated the Fort D. A. Russell National Historic Landmark.

Previous archaeological surveys have identified numerous prehistoric and historic archaeological sites, many of which are eligible for the NRHP. Cultural resources require special care and consideration during the planning process. For example, when repairs are made to building exteriors, modern materials often may be used, but the historic appearance must be preserved. The 1984 Programmatic Memorandum of Agreement between FEWAFB,

the Advisory Council on Historic Preservation, and the State Historic Preservation Officer outlines procedures and restrictions. More detailed information and direction are contained in the new Integrated Cultural Resources Management Plan for Francis E. Warren Air Force Base (2004 Volumes A, B, and C). Section 5.0 of this plan outlines specific operating procedures for activities that may affect or will affect historic properties. These procedures intend to insure compliance with federal preservation legislation and offer step-by-step considerations to properly plan and execute various types of project or event activities related to protection of historical assets.

All development in or near the Historic District should continue to be coordinated through the Base Historic Preservation Officer (90 CES/CECEH) and with the State Historic Preservation Office (SHPO).

Zone 1: South of Missile Drive

This zone contains some historical locations, but they represent a relatively small portion of the area (Figure 3.10-1A).

Zone 2: North of Missile Drive and South of Central Avenue

The majority of the base historical facilities are located in this zone. The majority of the historic structures are located in the Fort D. A. Russell National Historic Landmark (Figure 3.10-1B).

Zone 3: North of Central Avenue

There are some historical sites in the northern part of this zone that also are shared by Zone 2. Historic properties in this zone are primarily prehistoric and historic archaeological sites (Figure 3.10-1C).

3.11. Solid Waste

FEWAFB does not manage an active solid waste landfill. Solid waste (trash) is collected, weighed, and then transported to the city of Cheyenne landfill for disposal. A local civilian contractor removes approximately 160 tons of solid waste per month from the installation's industrial areas and collects an additional 100 tons per month from military family housing (MFH).

Local landfill for construction type material may not be available depending on volume and construction debris characterization. Local landfills are reaching capacity and are selective on type and bulk construction debris. Construction waste (to include lead/asbestos-containing construction material) can be disposed of in Ault, Colorado at the Weld County landfill (there are no known current restrictions that would affect acceptance of demolition type debris/materials).

The base operates a recycling program. The base recycling facility accepts aluminum, steel, and tin cans, plastics, cardboard, office paper, mixed paper, magazines, and newspapers. Office paper is collected weekly from the industrial buildings on base. MFH participates in a curbside recycling program. Additionally, the base has established a compost program. The facility accepts biodegradable materials such as wood landscaping materials, grass clippings, leaves, manure, and tree trimmings. Approximately 1,200 tons of finished compost are produced at the base facility per year.

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3.12. Hazardous Materials and Waste

Hazardous materials are in use throughout the base. Hazardous materials are collected at 15 satellite accumulation points (SAPs). Each SAP can store up to 55 gallons of hazardous material. The base does not accumulate acute hazardous waste. Hazardous materials/wastes are transferred from the SAPs to the base's Hazardous Waste Characterization Site (Building 944), where they are categorized as to specific waste types and prepared for shipment. After characterization, waste materials are transferred to one of six hazardous material/waste non-permitted storage buildings (buildings 935-941). A certified contractor removes the waste material from the installation within 90 days. Sporadically, the base generates more than 1,000 kilograms (2,200 tons) of waste material per calendar month and is classified as a medium quantity generator.

FEWAFB currently has 10 underground storage tanks (USTs) and 78 aboveground storage tanks (ASTs) on base. These fuel storage tanks are highly regulated and are frequently inspected to maintain regulatory requirements and insure tank integrity. The base does have areas of contamination associated with USTs for which cleanup is currently being addressed under state UST laws and regulations. The state of Wyoming has been delegated the authority for the UST cleanup program under the Resource Conservation and Recovery Act (RCRA).

3.12.1. RCRA, Installation Restoration Program (IRP), and Toxic Substances

The Resource Conservation and Recovery Act (RCRA) requires cleanup of current hazardous materials/operations and spills. Cleanup activities should be accomplished on a case-by-case basis as events occur. Operating in three states and two EPA regions, FEWAFB has a clean track record in this respect. The base has areas of contamination associated with USTs for which cleanup is being addressed under state UST laws and regulations. The state has been delegated authority for this program under RCRA. The base does not allow the installation of any products containing polychlorinated biphenyls (PCBs).

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Superfund Amendments Reauthorization Act (SARA) established the nationwide process to clean up hazardous waste disposal and waste sites. The IRP is a subcomponent of the DoD-wide Defense Environmental Restoration Program (DERP) that addresses the identification, investigation, and cleanup of contamination from hazardous substances and pollutants associated with past practices.

FEWAFB is on the National Priorities List (NPL) for environmental cleanup under the Federal Facility provisions of Section 120 of CERCLA. As a result of this listing, a Federal Facilities Agreement (FFA) was established among the base, the EPA, and the Wyoming Department of Environmental Quality (WDEQ). Twenty on-base sites were identified (Figure 3.12.1-1). Site types include spill sites, a fire training area, landfills, closed firing ranges, and four plumes of solvent-contaminated groundwater covering approximately 700 acres.

All groundwater contamination is contained on the installation with the exception of Trichloroethylene (TCE) contaminated groundwater from former Landfill 3, which extends slightly into an off-base private residential area, commonly referred to as "Nob Hill." This housing area is located between Happy Jack and Old Happy Jack Roads, outside the southeastern installation boundary. The base completed a project connecting this area to the Cheyenne water system in 1997.

Land use controls have been established for all IRP sites where unrestricted use and unlimited exposure is not permitted. These controls include fencing and other access prohibitions for certain portions of the base, prohibitions on groundwater withdrawal, and requiring additional construction design components as necessary. Construction is prohibited entirely in certain areas of the base (i.e., landfills). These controls have been implemented at the base to protect human health and the environment, as well as the integrity of corrective action operations.

Zone 1: South of Missile Drive

This zone possesses the largest portion of IRP sites on base. See Figure 3.12.1-1A for a detailed illustration of the location and nature of the contamination.

Zone 2: North of Missile Drive and South of Central Avenue

This zone possesses a small number of IRP sites that are predominantly located in the southern portion of Zone 2 near Zone 1. See Figure 3.12.1-1B for a detailed illustration of the location and nature of the contamination.

Zone 3: North of Central Avenue

The firing range is located in this area and has the potential for the presence of UXO. See Figure 3.12.1-1C for a detailed illustration of the location and nature of the contamination.

3.12.2. Asbestos

All buildings constructed prior to 1981 are presumed to contain Asbestos Containing Materials (ACM) if no survey has been recorded. Prior to 1981, ACMs were used extensively in plaster, wall board, joint compound, felt material, roofing material, floor tile, mastic, piping insulation, gaskets, ceiling tiles, and sprayed-on soundproofing and insulation. FEWAFB developed an Asbestos Management Plan (AMP) and an Asbestos Operating Plan (AOP) per AFI 32-1052, *Facility Asbestos Management*, in March 2002. Under these plans, the quantity and type of asbestos (friable/non-friable) in structures must be determined before facilities are renovated or demolished. Complete removal of ACM is not required; however, ACM likely to release airborne asbestos fibers that cannot be reliably maintained, repaired, or isolated must be removed. No new ACMs are used or installed at any facilities on FEWAFB.

3.12.3. Lead-Based Paint

The base has developed a Lead Management Plan (LMP) to deal with potential lead hazards. The LMP assigns responsibilities and describes procedures for managing hazards associated with lead and lead-based paint (LBP) on base and at the associated missile sites. The base LMP primarily aims to protect children under the age of seven from lead exposure, since they are most at risk. However, the presence of LBP does not necessarily mean a hazard exists. The base policy is to manage LBP in place by maintaining the LBP in good condition. When cost effective, LBP abatement is considered for facility renovation projects. In addition, specific Department of Housing and Urban Development (HUD) standards apply to MFH units. At FEWAFB, housing units constructed since 1981 are considered LBP free. These areas include Carlin Heights and the new Atlas housing. All other base housing units contain LBP. Housing residents are required to receive information prior to occupying the quarters and whenever work

is to be scheduled, so as not to disturb the LBP, and to adequately protect themselves and their families from hazards associated with lead-based paint.

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3.13. Infrastructure

The infrastructure elements addressed in this component primarily include the utility systems on FEWAFB. Each is reviewed and its major components are outlined. In general, the utility systems on FEWAFB are classified as distribution and collection systems including water, sanitary sewer, storm drainage, electrical, central heating, natural gas, and industrial waste water. Exceptions are the liquid propane tank farm, a back-up to the natural gas system for the majority of the base and base pavements.

3.13.1. Water System

The Cheyenne Board of Public Utilities (BOPU) supplies and satisfies all base water requirements. The BOPU receives most of its raw water from the Platte River Basin. This water is treated at the Sherard Treatment Plant located west of Cheyenne to take advantage of the terrain. In addition to this facility, BOPU can draw up to 11 million gallons per day (MGD) from the ground, which is then treated at each well head.

Water enters the base via three city-owned and maintained water mains that cross the installation near the stage storage area (SSA) from the northwest. These mains also supply the city of Cheyenne. The base meters its water consumption at 13 points along these mains. Because water flows by gravity at very high pressure from the city storage tanks into the base, pressure reduction valves (PRV) were installed at the metering stations. On-base water main lines are looped, with the exception of one that services the Carlin Heights housing area (Figure 3.13.1-1). The base potable water system incorporates five PRVs and pipes from six to 16 inches in diameter (not including service lines). Pipes dating back to the 1940s are still in use. The majority of pipe materials are composed of ductile iron, although pressure polyvinyl chloride (PVC) piping is also in use.

Water consumption on the base for fiscal year (FY) 2004 was 251 million gallons. Use of 320 million gallons is projected for FY 2005. The increase is due to the easing of water restrictions that were in effect for 2004. The base steady use rate is 11-12 million gallons for both industrial and housing use. In FY 2004, 138 million gallons were used for drinking/flushing and 112 million gallons for irrigation. For FY 2005, 138 million gallons are projected for drinking/flushing and 182 million gallons for irrigation.

The base has one 200,000-gallon water storage tank located in the southwestern corner of the base, which formerly supported the automatic fire suppression system for the WSA. (This storage tank has recently been drained and is no longer in service).

Zone 1: South of Missile Drive

See Water System Figure 3.13.1-1A.

Zone 2: North of Missile Drive and South of Central Avenue

See Water System Figure 3.13.1-1B.

Zone 3: North of Central Avenue

See Water System Figure 3.13.1-1C.

3.13.2. Sanitary Sewer System

A National Pollutant Discharge Elimination System (NPDES) permit issued by the WDEQ is in place to allow discharge of domestic and industrial processed waste water into the city of Cheyenne's waste water collection system. Waste water is monitored at Talbot Court (outfall 001). The BOPU treats all waste water discharged by FEWAFB directly into the city's sanitary sewer system. The BOPU treats all waste water collected in its service region at one of two treatment plants. These include the Dry Creek Treatment Plant (7 MGD capacity) and the Crow Creek Treatment Plant (4 MGD capacity). These plants are operating at 90 percent of their current capacity.

The existing on-base sanitary sewer system includes the collection system and one lift station (Figure 3.13.2-1). The collection system consists of two distinct parts: south of Crow Creek and the Historic District. The part of the system south of Crow Creek requires a lift station in order to merge with the flow from the base cantonment area.

The base system comprises about 15 miles of pipe ranging from four to 15 inches in diameter with approximately 300 manholes. Some system parts date back to the 1930s. This system has received four of the five planned phases of repair, and design of the final phase has been completed. This leaves only the segment of sewer serving Capehart housing in need of replacement or repair.

The sanitary sewer flow exiting FEWAFB averages 17,800,000 gallons per month or 593,000 gallons per day, which is near the capacity of the city line that it enters. In the past, sewage exiting the base exceeded the flow of potable water entering the base. This unusual condition occurred in the spring during the periods of heavy rains. In addition, the sanitary sewer flow is higher in summer months than in winter months. Summer increases coincide with the large increases in irrigation and, therefore, much of the water used to irrigate lawns has been finding its way into the sewer through inflow and infiltration.

In terms of total flow capacity, the sanitary sewer system can support moderate growth. The collection area south of Crow Creek is limited by the amount that can be pumped through the Crow Creek lift station, which is 700,000 gallons daily. Currently, the station is being used at 25 percent capacity.

The 1994 Sanitary Sewer Study concluded that the 5th Cavalry Avenue sewer line was experiencing surging in several locations. In addition, the flow exceeded 50 percent of capacity in the forced main, just downstream of the Crow Creek lift station and along 5th Cavalry Avenue sanitary sewer. When these limitations are considered, the base has an expansion capability of approximately 41 percent. This figure may be significantly greater now due to the extent of replacement and repair that has taken place on the system since the study was done.

Zone 1: South of Missile Drive

See Sanitary Sewer System Figure 3.13.2-1A.

Zone 2: North of Missile Drive and South of Central Avenue

See Sanitary Sewer System Figure 3.13.2-1B.

Zone 3: North of Central Avenue

See Sanitary Sewer System Figure 3.13.2-1C.

3.13.3. Storm Drainage System

Storm water is discharged into Diamond and Crow Creeks pursuant to the permit issued by the WDEQ. Additional construction may impact the permit and require modifications to accommodate additional runoff. In addition, the Storm Water Pollution Prevention Plan (SWPPP) would need to be updated. Construction storm water permits are required for construction projects greater than one acre. Under the base's SWPPP, best management practices (BMPs) are required for many construction activities that may not require permits. The base lies within two drainage basins. Dry Creek flows to the southeast from the northern section of the base into the city of Cheyenne. Its drainage area covers about 7.5 square miles. Crow Creek drains a 300-square-mile area, which is over 30 miles long. Crow Creek creates a natural divide between the north and south sections of the base. Both sections generally drain toward Crow Creek. According to the 1988 Crow Creek Master Plan, flood flows along Crow Creek may result from the following processes: Short and intense thunderstorms covering a localized area of the basin; longer, more moderate storms causing all parts of the basin to contribute runoff; or snowmelt enhanced by rainfall in the springtime months.

Storm water entering the base from the northwest generally drains from the stage storage area (SSA) toward the south-southeast. North of the railroad tracks there is no identifiable pathway (other than streets and small drainage swales) for water to drain into. Two minor drainage basins, at South Creek Drive and South Frontier Road, drain toward Crow Creek under the railroad tracks; however, both are small, and do not adequately drain the offsite flows entering the main base (Figure 3.13.2-1).

The major obstacle to storm water runoff is the railroad embankment, which cuts the base in a general east-west line just north of Crow Creek. The embankment divides the storm drainage system into two general subsystems, one north of the railroad embankment, and the other south of Crow Creek. Storm water runoff south of Crow Creek feeds naturally into several gullies and into Diamond Creek.

Interstate 25 also blocks water draining into the base and eventually into the city of Cheyenne from flowing into Crow Creek. This north-south running barrier funnels water to the southeast into the city on Randall Avenue and also into the city north of the railroad tracks.

Storm water drainage structures have been installed on base at various times over the past 50 years. These systems include drainage culverts, underground storm water drainage systems, roadside ditches, and curb and gutters. Unfortunately, most underground systems are undersized based on current standards. Also, many are silted-in and are either partially or completely ineffective.

The existing system cannot handle a 10-year design storm, considered a minor event. Also, a 100-year design storm, considered a major event, would not be controlled by existing structures. As a result, the system is not reliable or safe for either minor or major storm events.

The base has experienced flooding many times in the past. It is estimated that in the past century, the local area has experienced five 500-year storm events. In 1985, a 500-year storm event caused several deaths in the city of Cheyenne.

Recently, a dike was constructed along Wapiti Road and Rogers Drive as part of the Atlas housing project to channel storm water away from the new housing.

Zone 1: South of Missile Drive

See Storm Drainage System Figure 3.13.2-1A.

Zone 2: North of Missile Drive and South of Central Avenue

See Storm Drainage System Figure 3.13.2-1B.

Zone 3: North of Central Avenue

See Storm Drainage System Figure 3.13.2-1C.

3.13.4. Electrical System

Western Area Power Authority (WAPA) provides electrical power to the entire base. The base electrical distribution system consists of one substation, two underground "express circuits" to Switchstation One (near the commissary), another "express circuit" to Switchstation Two (near the main fire station), and nine feeder circuits. Figure 3.13.4-1 illustrates the normal flow of power throughout the base. The substation is located in the extreme southwest corner of the base and is connected to the WAPA regional power grid. The substation is capable of supplying 15 megavoltamperes (MVA) redundant, or a total of 30 MVA. Redundant capability is required to quickly recover in the event of failure of one of the two substation transformers, or of the circuits serving and served by the transformers.

The overhead distribution system was originally installed in 1941. There are approximately 525,000 linear feet of three- and single-phase distribution lines on base. During the Peacekeeper beddown in the 1980s, much of the overhead cabling was replaced. Recently, overhead lines have been replaced with underground ductbank, cabling, and switchgear in Officer's Row, Sergeant's Row, and Capehart housing, the 5th Cavalry corridor, and the WSA. Overhead lines serving the commissary area to Gate 2 along Missile Drive have also been replaced with new underground conductors and underground building service lines have been installed along this corridor. Projects to replace the overhead lines on Garrison Loop, 10th Cavalry Avenue, and Old Glory Road have recently been completed.

Peak demand along the line from the base substation was 7.7 MVA, which is approximately 51 percent of the base's 15 MVA redundant capacity. A 1997 electrical distribution study surveyed the entire base system, updated record drawings, developed a computer database of system components, and computer modeled the load flow, coordination, and short-circuit analysis.

Zone 1: South of Missile Drive

See Electrical System Figure 3.13.4-1A.

Zone 2: North of Missile Drive and South of Central Avenue

See Electrical System Figure 3.13.4-1B.

Zone 3: North of Central Avenue

See Electrical System Figure 3.13.4-1C.

3.13.5. Central Heating System

FEWAFB has a central heating system (Figure 3.13.4-1) which serves most major buildings on the installation except for MFH assets, which have individual gas furnaces. The heat plant, built in 1981, is located near the railroad at the center of the built-up area of the base. The plant has three boilers, each with a capacity of 55 million British Thermal Units (BTUs) per hour. The current peak demand requires approximately 66 million BTUs, which can be satisfied by using two boilers. The natural gas-fired units allow the heat plant to utilize the base's propane backup system. Since the heat plant converted to gas-fired boilers, baseline energy consumption has not been established.

Heat from the heat plant is transferred to each building via high-pressure high temperature hot water (HTHW) lines. The HTHW distribution lines emanate from the plant in three general directions. One line services buildings along 5th Cavalry Avenue towards Gate 1. Another line parallels 5th Cavalry Avenue and branches out to service the remaining buildings north of the railroad tracks. The third line services the buildings south of Crow Creek. Each building has a heat converter that transfers heat from its HTHW line to either low-pressure steam or medium temperature hot water, which then delivers heat throughout the building. The Medical Clinic also has a 60 pounds per square inch (psi) secondary steam line to run to the autoclaves.

If the HTHW distribution system were to fail, 75 percent of base facilities would be without heat. The first two of five phases of repair to the HTHW system have been completed, addressing 70 percent of the system, which is most of the trenched lines. The remaining phases will entrench the other 30 percent of the system that is still direct-buried and add several isolation valves.

Zone 1: South of Missile Drive

See Heating System Figure 3.13.4-1A.

Zone 2: North of Missile Drive and South of Central Avenue

See Heating System Figure 3.13.4-1B.

Zone 3: North of Central Avenue

See Heating System Figure 3.13.4-1C.

3.13.6. Natural Gas System

Natural gas is supplied onto FEWAFB by Xcel Energy. The natural gas system once consisted of two distribution zones (Figure 3.13.4-1). One supported the recently demolished Wherry housing area and the other now supports the rest of the base. For the distribution zone supporting the base, the main line enters the installation near the intersection of Happy Jack Road and I-25 near Gate 2. Although the metering station is capable of delivering 300,000 cubic feet of gas per hour, or 7.2 million cubic feet (MCF) per day, the 8-inch lines are maintained at an operating pressure of eight to nine pounds psi, resulting in delivery of 4.8 MCF per day to the base.

Natural gas is the primary fuel for the heat plant and is used as fuel to heat all the housing areas. Underground pipelines supply fuel to individual dwelling gas furnaces.

The heat plant and the existing housing areas are provided back-up fuel supplies from the on-base liquid propane tank farm, thus enabling the base to realize substantial savings in natural gas charges.

Over three recent heating seasons, MFH accounted for more than one-half of the natural gas consumed on the base. There are 42 miles of direct-buried gas piping used to supply boilers and hot water heaters for base facilities. Most of the piping is polyethylene or newer cathodic-protected steel. A new regulation station was installed and 90 percent of the older steel gas lines were replaced and looped by projects accomplished between 1992 and 1996. All gas piping in MFH areas was replaced with polyethylene from 1991 to 1999.

Zone 1: South of Missile Drive

See Natural Gas System Figure 3.13.4-1A.

Zone 2: North of Missile Drive and South of Central Avenue

See Natural Gas System Figure 3.13.4-1B.

Zone 3: North of Central Avenue

See Natural Gas System Figure 3.13.4-1C.

3.13.7. Liquid Fuels System

The most significant liquid fuel system on FEWAFB is the liquid propane tank farm, which is used as an alternate fuel source when the natural gas supply is interrupted. The system converts the liquid propane to a gas and then uses the same pipeline distribution network as the natural gas system. The liquid propane tank farm is located near the heat plant, adjacent to the railroad tracks. It consists of 15 tanks with a total capacity of over 300,000 gallons. This is sufficient to support the entire base for 30 days in the summer and 18 days in the winter months. The base has averaged three natural gas system shutdowns per year since CY98. In addition, the base has purchased between 100,000 to 200,000 gallons of propane per year. As part of the interruptible gas service contract with Xcel Energy, the base must switch over to back-up liquid propane fuel on two hours notice; however, at the current levels of use in the Cheyenne Metropolitan Area, the service interruptions are so infrequent (once or twice a year) that the base has only purchased one tank of liquid propane for its liquid propane tank farm in the last 15 years.

An automated change-over system from natural gas to liquid propane is installed. The base also has a system to supply aviation fuel to helicopters. The aviation fuel is provided by tanks operated by the Wyoming Air National Guard at the Cheyenne Airport into bulk fuel trucks owned and operated by the base. The aviation fuel is then transported to the base and is pumped directly from the trucks into the helicopters. Base motor vehicles are fueled at the following three locations:

1. AAFES gas station that is comprised of four 10,000-gallon ASTs (two gasoline, two diesel). There is also a compressed natural gas (CNG) unit available for fueling military vehicles that utilize CNG. One additional AST is currently planned to be installed that will contain E85 fuel.

2. Peacekeeper vehicle maintenance shop, one 5,000-gallon underground diesel fuel tank used to fuel government-owned trucks.

3. Main military vehicle fueling station.

3.13.8. Industrial Waste Water System

The industrial waste water system is composed of three parts:

- Containment Systems: The industrial waste water system has approximately 36 pretreatment/holding tanks that are pumped out as needed. These pretreatment facilities consist of oil/water separators at missile maintenance bays, vehicle maintenance facilities, and vehicle wash areas. Pre-treatment/holding tanks for restaurants and dining facilities consist of grease traps.

- Storm Drainage: Industrial waste water can become mixed with rain water and potentially be discharged into Crow Creek. The base has a WDEQ NPDES permit that allows discharges into surface waters.

- Sanitary Sewer: Waste not trapped in the pre-treatment/holding tanks flows down the sanitary sewer and becomes treated with the rest of the domestic sewage. Most of the waste is kept in the pre-treatment facilities mentioned above. Sanitary sewage is discharged into the city of Cheyenne's system. The BOPU has issued a pre-treatment permit that the base must comply with. Bioenvironmental Engineering provides quarterly surveillance of the total combined sanitary/industrial sewage just prior to co-mingling with the city residential sewers.

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3.14. Transportation

Traffic enters the base primarily through two gates: Gate 1, which is located on Randall Avenue on the east side of the installation, or Gate 2, which is located on Missile Drive on the southeast side of the base. Both of these gates are accessible from the Cheyenne street system and from I-25 at Exit 10 (Missile Drive) and Exit 11 (Randall Avenue). Two additional gates, Gate 4 and Gate 5, are used on a limited basis and are closed to normal day-to-day traffic. Gate 5 (on Central Avenue, just west of I-25) provides access to the northern portion of the base. Gate 4, located at the western end of Randall Avenue, has been temporarily closed due to lack of force protection resources to man the gate.

The street network on the base consists of arterials, collectors, and local streets. Main arterials are Artillery Road, Central Avenue, Randall Avenue, Missile Drive, and the northern part of Old Glory Road. Six collectors distribute traffic from the arterials to the local streets: Old Glory Road, Frontier Road, Commissary Road, Rogers Drive, 10th Cavalry Avenue, and 15th Cavalry Avenue. The installation has four traffic lights, three on Randall Avenue at Fort Steele Way, Rogers Drive and Old Glory Road intersections, and one at Old Glory Road and the Missile Drive intersection. Rail crossing signals are found at Old Glory Road and at the Missile Drive/Central Avenue intersection (Figure 3.14-1).

Traffic congestion normally peaks in the early morning (0645 to 0745), during lunch time (1200 to 1300) and at the end of the workday (1630 to 1730). Congestion generally occurs at both Gate 1 and Gate 2 as people enter and exit the installation. Traffic congestion also occurs at the intersections of Randall Avenue and Missile Drive/Central Avenue, where there is no signal, but there is signage. Traffic circulation is also affected by the pronghorn antelope found on the installation.

The base is in the process of implementing a phased redevelopment program. The program realigns parking lots and other physical characteristics that affect traffic circulation and parking. In addition, pedestrian and bicycle routes and paths are under continuous re-routing and upgrade often based on program funding. These programs and their current status are important considerations to ensure compatible interface of new projects and future planning actions.

Off-base transportation supporting FEWAFB consists of interconnecting bicycle and pedestrian routes, and Interstate Highways 25 and 80. Mass transit with bus service is provided by Powder River Transportation and the Cheyenne Transit System. Air service is provided at the Cheyenne Airport with connecting flights to nearby major cities and national airlines. The installation also uses the Cheyenne Airport as a military passenger and military cargo terminal capable of handling Air Force C-141 type aircraft. Two national rail lines support Cheyenne and can also support base rail transportation requirements. The base owns two miles of track and both Cheyenne and base rail facilities are sufficient for support.

Zone 1: South of Missile Drive

See Transportation Network Figure 3.14-1A.

Zone 2: North of Missile Drive and South of Central Avenue

See Transportation Network Figure 3.14-1B.

Zone 3: North of Central Avenue

See Transportation Network Figure 3.14-1C.

3.15. Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to address environmental and human health conditions in minority and low-income communities.

3.15.1. Socioeconomic Conditions

Strategically situated at a major transportation hub (the intersection of I-25 and I-80 and two major railroads), Cheyenne is a developing center of commerce. The Cheyenne area thrives on agriculture, ranching, and mining. Employment opportunities are plentiful in the Cheyenne area; however, wages are somewhat lower than in other metropolitan areas. The median household income in 2000 was $38,856.00, and the average unemployment rate was 3.3 percent.

According to the U.S. Census, in 2000 the population of Cheyenne was 53,011, an increase of 3,003 persons since 1990 (six percent growth). In July of 2003, the Laramie County population was estimated to be 82,894, up from 73,142 in 1990.

In 2000, the top three industries in Cheyenne/Laramie County were government (28.7 percent of total employment), retail trade (18.4 percent), and services (23.6 percent). The top four employers were FEWAFB, the State of Wyoming, the Federal Government, and Laramie County School District Number One. Major private employers in the area include United Medical Centers, Union Pacific Railroad, Sierra Trading Post, Wal-Mart, Echo Star Communications, Great Lakes Aviation, Qwest Corporation, and Blue Cross/Blue Shield.

Most of the urbanized development in the area occurs within the city limits of Cheyenne, or on the outskirts in unincorporated Laramie County. Development directly east of the base is primarily residential development with the exception of small pockets of public and commercial development. The intersection of I-25 and I-80, just south of the base, has resulted in commercial and industrial development around the interchange. For the most part, existing land uses directly south, to the west, and to the north of the base are open space, agricultural, or low-density residential. The Western Hills housing development abuts the northeastern installation boundary north of Central Avenue. Recent development in the area most immediate to the base has occurred along West Lincolnway with the development of the IKON Center and Home Depot.

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4.0 ENVIRONMENTAL IMPACTS

4.1. Introduction

Environmental impact is defined as a consequence from modification to the existing environment brought about by the implementation of a proposed action or alternative. Impacts can be beneficial or adverse, can be a primary result of an action (direct) or a secondary result (indirect), and can be permanent or long lasting (long-term) or temporary and of short duration (short-term). Impacts can vary in degree from a slightly noticeable change to a total change in the environment.

Short-term impacts would occur during and immediately after the construction, renovation, or demolition activities as defined in the proposed actions and alternatives. For these projects, short-term impacts are defined as those impacts resulting from construction, renovation, or demolition activities, whereas long-term impacts may be both those resulting from the construction and operation of the proposed new facilities.

Significance criteria are presented for each affected resource. These criteria are based on existing regulatory standards, scientific and environmental documentation, and/or professional judgment. Potential impacts for these projects are classified at one of four levels: major, moderate, minor, and negligible. Major impacts (as defined in CEQ guidelines 40 CFR 1500-1508) are those effects that are most substantial and, therefore, should receive the greatest attention in the decision-making process. Moderate impacts are those impacts associated with a proposed action that would be noticeable to the public and surrounding community but would fail to meet the criteria used to define significant impacts. Minor impacts are those impacts that result in changes to the existing environment that could not be easily detected. Negligible actions are those that would not alter the existing environment. In the following discussions, impacts are considered adverse unless identified as beneficial.

A brief description of the impact severity criteria for each resource is provided and describes relative impacts considered to be negligible, minor, moderate, or major. Major impacts would include resources that are committed irreversibly and are irreplaceable.

Table 4.1-1 has been developed to assess the severity of a potential impact. Those resources not found in Table 4.1-1 are analyzed using the same severity criteria as briefly described below:

- Negligible – impact is imperceptible to natural or human environment, below levels of quantification
- Minor – relatively low in severity, requiring no or minimal mitigation actions
- Moderate – reasonable; not severely adverse, excessive, or extreme and can be minimized with mitigation actions
- Major – impact results in irreversible and irretrievable commitment of the resource or extensive mitigation actions and could require Environmental Impact Statement

Table 4.1-1: Criteria for Rating Severity of Impacts

Impact Severity	Noise and AICUZ	Land Use	Earth Resources	Air Quality	Water Resources
Negligible	Impact localized and not detectable, or at lowest levels of detection.	No change in land use or planned uses.	Impact localized and not detectable, or at lowest levels of detection.	Impact not perceptible and not measurable; not affecting surroundings.	Impact not detectable, no discernible effect on water quality.
Minor	Impact localized and slightly detectable but would not affect overall community.	Proposed land use would not be optimal, but generally compatible with surrounding land use and planned uses.	Impact localized and slightly detectable but would not affect overall natural geologic structures, topography, soils, or climate.	Impact perceptible but not measurable; would remain localized.	Impact slightly detectable but would not affect overall water quality.
Moderate	Impact clearly detectable; could affect local community; mitigation provided to avoid impacts.	Proposed land use would conflict with planned uses and may require changes to use designations. Mitigation may be necessary to be compatible with adjacent land uses.	Impact clearly detectable; could affect overall natural geologic structures, topography, soils, or climate appreciably. Mitigation may be necessary.	Impact detectable and possibly affecting integrity of surroundings. Air quality testing would be required.	Impact clearly detectable and could have an appreciable effect on the water quality of the environment.
Major	Impact highly noticeable and would substantially influence individuals or communities. This impact would require the preparation of a mitigation plan and/or preparation of an EIS.	Proposed land use would require rezoning or potential relocation of existing structures or facilities to be compatible. Mitigation would be required.	Impact highly noticeable and would substantially influence overall natural geologic structures, topography, soils, or climate. Mitigation would be required.	Impact would have a significant impact on surroundings. This impact would require the preparation of an individual EA or EIS.	Impact would have a substantial, highly noticeable, potentially permanent effect on the environment. This impact would require the preparation of an individual EA or EIS.

Table 4.1-1: Continued

Impact Severity	Vegetation and Wildlife	Health and Safety	Outdoor Recreation	Cultural and Archaeological Resources	Solid Waste
Negligible	Impact localized and not detectable, or at lowest levels of detection.	Impact not detectable, no discernible effect on health and safety.	Impact localized and not detectable; not affecting recreational activities.	Impact barely perceptible and not measurable; confined to small areas or affecting a single contributing element of a larger Historic District with low data potential.	Amount of waste from action is minimal, predominantly non-hazardous, and would be easily accommodated by current management systems.
Minor	Impact localized and slightly detectable but would not affect overall structure of any natural community.	Impact slightly detectable but would not affect overall health and safety.	Impact localized and slightly detectable, but would not impact the overall function of outdoor recreational activities.	Impact perceptible and measurable, but would remain localized; affecting a single contributing element of a larger Historic District with low to moderate data potential, or would not affect character-defining features of a National Register eligible or listed property.	Amount of waste from action is a substantial volume but would be accommodated by existing waste handling systems in the area or adjacent areas.
Moderate	Impact clearly detectable; could affect individual species, communities, or natural processes appreciably.	Impact clearly detectable and could have an appreciable effect on health and safety of the base and community.	Impact clearly detectable and could affect the overall function of outdoor recreational activities.	Impact sufficient to change a character-defining feature but would not diminish resource's integrity enough to jeopardize its National Register eligibility, or it generally would involve a single or small group of contributing elements with moderate to high data potential.	Amount of waste from action would tax nearby waste handling systems and/or would contain reportable quantities of hazardous wastes.
Major	Impact highly noticeable and would substantially influence natural resources (e.g., individuals or groups of species, communities, or natural processes).	Impact would have a substantial, highly noticeable, potentially permanent effect on health and safety. This impact would require the preparation of an individual EA or EIS.	Impact would have a significant impact on outdoor recreation activities. Mitigation would be required.	Substantial, highly noticeable change in character-defining features would diminish resource's integrity so much that it would no longer be eligible for National Register listing, or it would involve a large group of contributing elements or individually significant properties with exceptional data potential.	Amount of waste could not be handled by local area or adjacent waste handling systems due to characterization of the waste handling systems.

Table 4.1-1: Continued

Impact Severity	Hazardous Materials and Waste	Infrastructure	Transportation	Environmental Justice
Negligible	Amount of waste from action is minimal, predominantly non-hazardous, and would be accommodated by current management systems.	No measurable change to current use of utility system or demands on existing systems.	Impact not detectable or measurable, no discernible effect on transportation system.	Impact not detectable, no discernible disproportionate impact to low-income and minority populations.
Minor	Amount of waste from action is a substantial volume but would be able to be accommodated by existing waste handling systems in the area or adjacent areas.	Impact on demands to existing systems is measurable, but would remain localized, affecting an area that is unavoidable, such as repairing a pipeline or burying an upgraded electrical line.	Impact on demands to existing transportation systems detectable and measurable but would remain localized.	Impact slightly detectable but would not affect overall environment for low - income and minority populations.
Moderate	Amount of waste from action would tax nearby waste handling systems and/or would contain reportable quantities of hazardous wastes.	Impact sufficient to require changes in infrastructure components around local area of project.	Impact clearly detectable and could have an appreciable effect on the transportation system, mitigation and changes in the components around local area of project may be necessary.	Impact clearly detectable and could have an appreciable disproportionate effect on the environment for low-income and minority populations.
Major	Amount of waste would severely tax or exceed existing area or adjacent area waste handling system(s). Hazardous waste volume emissions would exceed current capacity to manage it at the installation.	Impact or demands on existing system are sufficient to require changes in major infrastructure components on base or in the community.	Impact would have a substantial, highly noticeable, potentially permanent influence on transportation system, and would require changes in major transportation components on base or in the community.	Impact would have a substantial, highly noticeable, potentially permanent disproportionate influence on the environment for low-income and minority populations; or is perceived by another government agency as significantly affecting existing economic or social conditions for low-income and minority populations.

4.2. Noise and Air Installation Compatible Use Zones (AICUZ)

Impacts to airspace use would be considered major in severity if the action would result in one or more of the following:

- Changes in airspace management that elevate frequency of use of airspace not currently accommodated by existing published routes and air control systems
- Proposed use of airspace would need to be established by modifying local routes or air control protocols
- Airspace use would require the creation of new published routes or air control protocols through FAA coordination

Noise impacts resulting from increased aircraft operations or changes in aircraft types are evaluated with respect to the potential for:

- Annoyance - noise caused by aircraft operations can impact the performance of various every day activities such as communication and watching TV in residential areas
- Hearing loss - the EPA recommends limiting daily equivalent energy to 70 dBA (a unit of measure for decibels, the measure of sound intensity or pressure. It is a logarithmic measurement; every 3dB increase represents a doubling of the sound pressure. The "A" in dBA indicates that the measurement was taken with an A-weighted scale; sound pressure varies across the audible spectrum, and the A-weighted scale approximates the human ear's sensitivity to various frequencies), approximately 75 Ldn (day-night average sound level), to protect against hearing impairment over a period of 40 years
- Sleep interference, which is of great concern in residential areas
- Wildlife may show a startle response to high intensity, sporadic noise levels; however, studies have determined there are no long-term behavioral or breeding effects on animals caused by aircraft noise

The standard threshold for determining at what point noise impacts become a nuisance is 65 Ldn.

4.2.1. Proposed Actions

Zone 1: South of Missile Drive

Demolish Buildings 841, 945, 949, 1037, 1200, and 1260; Upgrade Primary Missile Route (Missile Drive): FEWAFB does not operate any airfields associated with the use of fixed-wing aircraft for the purposes of take off and landing and has been exempted from preparing a study documenting AICUZ. Noise impacts in the project areas during demolition and upgrade activities would be temporary and would consist only of increased noise levels associated with demolition and upgrade activities. Noise associated with the proposed actions would be generated by standard construction equipment such as excavators, graders, backhoes, and dump trucks. This type of equipment may generate noise levels up to 80 dBA. In addition, construction equipment generally operates about 40 percent of the time when it is being used at a construction site. For comparison, a food blender generates about 88 dBA, and normal speech at three feet is 65 dBA. Only a minor increase in ambient noise levels is expected to occur. Noise would also be generated by increased traffic on area roadways, but would only be limited to certain times of the day. To minimize noise impacts, demolition and upgrade activities would be scheduled on normal workdays during normal working hours. Impacts would be minor and insignificant.

- No Action: No impacts to noise or AICUZ would occur under the No Action alternative.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Buildings 654 and 1458; Renovate Buildings 325, 284, 151, 220, 230, 236, 332, and 333; Renovate and Construct Addition to Buildings 323 and 324; Construct Addition to Building 465: FEWAFB does not operate any airfields associated with the use of fixed-wing aircraft for the purposes of take off and landing, and has been exempted from preparing a study documenting AICUZ. Noise impacts in the project areas during demolition and construction activities will be temporary and will consist only of increased noise levels associated with demolition and construction activities. Noise associated with the proposed actions would be generated by standard construction equipment such as excavators, graders, backhoes, and dump trucks. This type of equipment may generate noise levels up to 80 dBA. In addition, construction equipment generally operates about 40 percent of the time when it is being used in a construction site. For comparison, a food blender generates about 88 dBA, and normal speech at three feet is 65 dBA. Only a minor increase in ambient noise levels is expected to occur. Noise would also be generated by increased traffic on area roadways, but would be limited to certain times of the day. To minimize noise impacts, demolition and construction activities would be scheduled on normal workdays during normal working hours. Impacts would be minor and insignificant.

- No Action: No impacts to noise or AICUZ would occur under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad and FATS; Upgrade Primary Missile Route (Central Avenue): FEWAFB does not operate any airfields associated with the use of fixed-wing aircraft for the purposes of take off and landing and has been exempted from preparing a study documenting AICUZ. Noise impacts in the project areas during upgrade and construction activities would be temporary and would consist only of increased noise levels associated with these activities. Noise associated with the proposed actions would be generated by standard construction equipment such as excavators, graders, backhoes, and dump trucks. This type of equipment may generate noise levels up to 80 dBA. In addition, construction equipment generally operates about 40 percent of the time when it is being used in a construction site. For comparison, a food blender generates about 88 dBA, and normal speech at three feet is 65 dBA. Only a minor increase in ambient noise levels is expected to occur. Noise would also be generated by increased traffic on area roadways, but would only be limited to certain times of the day. To minimize noise impacts, upgrade and construction activities would be scheduled on normal workdays during normal working hours. Impacts would be minor and insignificant.

- No Action: No impacts to noise or AICUZ would occur under the No Action alternative.

4.3. Land Use

Land use includes the land on and adjacent to each proposed project site, the physical features that influence current or proposed uses, pertinent land use plans and regulations, and land availability. Compatibility with existing land use is of utmost importance.

An impact to land use would be considered major if one or more of the following occur as a result of the proposed action:

- Conflict with applicable ordinances and/or permit requirements
- Non-conformance with the current general plans, land use plans, preclusion of adjacent or nearby properties being used for existing activities
- Conflict with established uses of an area requiring mitigation

4.3.1. Proposed Actions

The following proposed actions would be contained within FEWAFB, which sets its own land use and zoning designations and should not present conflicts with local or state land use or zoning designations.

Zone 1: South of Missile Drive

Demolish Building 841: This building is designated as a community land use zone, and currently functions as the Education Center. Demolition of this building would create a vacant lot with plans to build a new Learning Center and Library in essentially the same location (addressed in a separate EA). Impacts of the demolition would be negligible and insignificant.

- No Action: Building 841 would not be demolished, and it would continue to function as the Education Center. The land use designation would remain the same, and no adverse impact to land use would result from the No Action alternative.

Demolish Building 945: This building is currently designated as an industrial land use zone, and currently functions as a FATS. Demolition of this building would create a vacant lot with no immediate plans for a new facility to be constructed on the site. The base plans to collocate and build a new FATS facility adjacent to the new firing range in the northwestern portion of the base. Any future construction at the demolition site should be compatible with surrounding land uses. Impacts would be negligible and insignificant.

- No Action: Building 945 would not be demolished, and it would continue to function as the FATS. The land use designation would remain the same, and no adverse impact to land use would result from the No Action alternative.

Demolish Building 949: This building is currently designated as an industrial land use zone, and it currently houses the military working dog kennels. Demolition of this building would create a vacant lot with no immediate plans for a new facility to be constructed on the site. The base plans to relocate the kennels to building 1503. Any future construction at the demolition site should be compatible with surrounding land uses. Impacts would be negligible and insignificant.

- No Action: Building 949 would not be demolished, and it would continue to function as the military working dog kennels. The land use designation would remain the same, and no adverse impact to land use would result from the No Action alternative.

Demolish Building 1037: This building is designated as an industrial land use zone, and is currently vacant. Demolition of this facility would result in a vacant lot with no immediate plans for a new facility to be constructed on the site. Any future construction at the demolition site should be compatible with current land use. Impacts would be negligible and insignificant.

- No Action: Building 1037 would not be demolished, and it would continue to be an unused facility. The land use designation would remain the same, and no adverse impacts to land use would result from the No Action alternative.

Demolish Building 1200: This building is designated as an administrative land use, and is currently used as temporary storage for family day care providers and contains temporary classrooms utilized by the Security Forces Squadron. Demolition of this facility would result in a vacant lot with no immediate plans for a new facility to be constructed on the site. The base is planning to relocate the storage facilities and move the classrooms to building 152. Any future

construction should be compatible with surrounding land uses. Impacts would be negligible and insignificant.

- No Action: Building 1200 would not be demolished, and would continue to function as temporary storage and classroom space. The land use designation would remain the same, and no adverse impacts to land use would result from the No Action alternative.

Demolish Building 1260: This building is designated as an industrial land use, and is currently used to house communications storage functions. Demolition of this building would not have an adverse affect on existing land use. The proposed action would result in a vacant lot with no immediate plans for a new facility to be constructed on the site. The base is planning to relocate the communications storage to buildings 332 and 333 once they are adapted for their new use as a communications campus. Any future construction should be compatible with surrounding land uses. Impacts would be negligible and insignificant.

- No Action: Building 1260 would not be demolished, and would continue to function as storage space. The land use designation would remain the same, and no adverse impacts to land use would result from the No Action alternative.

Upgrade Primary Missile Route (Missile Drive): Resurfacing is routinely necessary on all roads to maintain their functionality. The proposed action would provide needed maintenance and repair to accommodate heavy vehicles and dangerous loads traveling on and off the installation. The existing land use would not be impacted by the proposed action because land use would remain unchanged. Impacts would be negligible and insignificant.

- No Action: Missile Drive would not be resurfaced, and would continue to degrade. The impact would be highly noticeable and would substantially influence individual communities. From a land use perspective, impacts of the No Action alternative would be major.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Building 654: This facility is designated as an industrial use zone and was once used to convey coal but is now obsolete. Demolition of the coal conveyance platform would not have an adverse impact on the existing land use. The removal of this equipment would result in a vacant lot with no immediate plans for a new facility to be constructed on the site. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur to land use under the No Action alternative.

Demolish Building 1458: This building is designated as an outdoor recreational land use, and is part of the family campground. Demolition of this building would not have an adverse impact on existing land use. The proposed action would result in a vacant lot with no immediate plans for a new facility to be constructed on the site. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur to land use under the No Action alternative.

Renovate Building 325: This building is designated as a community land use, and is currently used as a dining facility. Renovation of this facility would not have an adverse impact on existing land use as it will remain the same. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur to land use under the No Action alternative.

Renovate and Construct Addition to Buildings 323 and 324: These buildings are designated as industrial land use. They are used for storage (building 323) and as the primary fire department (building 324). Consolidation of these buildings for use as a consolidated fire

department will not impact existing land use as it will remain industrial. Impacts will be negligible and insignificant.

- No Action: No changes or impacts would occur to land use under the No Action alternative.

Construct Addition to Building 465: This facility is designated as a community land use zone, and is currently used as the Child Development Center. Constructing an addition to this facility would not cause any change to the existing land use designation. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur to land use under the No Action alternative.

Renovate Building 284: This building is designated as an administrative land use zone, and is currently vacant and unused. Renovation of this facility would not have any impact on the existing land use for this facility as its future use has been designated to remain administrative. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur to land use under the No Action alternative.

Renovate Building 151: This building is designated as a community land use zone, and it is currently for miscellaneous activities. This facility was formerly a gymnasium and, once renovated, would be a community center for the base. This proposed action would not have any adverse impact to the existing land use as it will remain unchanged. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur to land use under the No Action alternative.

Renovate Buildings 220, 230, and 236: These facilities are designated as unaccompanied housing, and are currently used as dormitories. Renovation of these facilities would not adversely impact the existing land use as it will remain unchanged. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur to land use under the No Action alternative.

Renovate Buildings 332 and 333: These facilities have been designated as mission land use and at one time functioned as a Minuteman III maintenance operation center. Renovation of these facilities would create a communications campus to accommodate communication functions. This would change land use from mission to industrial, which would be compatible and would result in minor impacts to existing land use. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur to land use under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad: The proposed location for this action is currently designated as open space land use and is unused. The hot cargo pad construction would convert the land use from open space to industrial. This would be a minor impact to existing land use as it will require a change in designation, but it would be compatible with the nearby facilities that are currently designated as industrial land use zones. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur to land use under the No Action alternative.

Construct FATS: The FATS would be collocated with the existing firing range complex in the northwestern portion of the installation. The land use designation for that area is industrial and would not be impacted by the addition of the FATS. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur to land use under the No Action alternative.

Upgrade Primary Missile Route (Central Avenue): Resurfacing is routinely necessary on all roads to maintain their functionality. The proposed action would provide needed maintenance and repair to accommodate heavy vehicles and dangerous loads traveling on and off of the installation. The existing land use would not be impacted by the proposed action because land use would not change. Impacts would be negligible and insignificant.
- No Action: No changes or impacts would occur to land use under the No Action alternative.

4.4. Earth Resources

An impact to topography would be considered major if it would result in one or more of the following:
- Exposure of people or structure to major geologic hazards
- Occurrence of substantial erosion or siltation
- Occurrence of substantial land sliding
- Substantial damage to project structures/facilities

An impact to soil would be considered major if it would result in one or more of the following:
- Occurrence of substantial erosion or siltation
- Occurrence of substantial land sliding
- Substantial damage to project structures/facilities

An impact to climate would be considered major if it would result in an uncontrolled release of chemicals/fuels into the atmosphere.

4.4.1. Proposed Actions

Zone 1: South of Missile Drive

Demolition of Buildings 841, 945, 949, 1037, 1200, and 1260: The demolition of these buildings could result in short-term impacts that may result in increased soil erosion by wind or water from ground-disturbing activities and the effects of soil exposure. Erosion impacts would likely be negligible, as the contractor would be required to follow standard erosion and sediment control mitigation measures. Such measures may include the use of silt fences and hay bales during rainy periods. Any exposed areas formed as a result of the demolition would be watered to prevent the mobilization of fugitive dust, until either some ground cover is put in place, or a new site is constructed. These areas have been previously disturbed and with erosion control measures in place. Impacts would be negligible and insignificant.
- No Action: No changes or impacts would occur under the No Action alternative.

Upgrade Primary Missile Route (Missile Drive): The resurfacing and maintenance of this base road would not impact earth resources. The area has been previously disturbed, and no new disturbances would occur as a result of the proposed action to upgrade the roadway. Impacts would be negligible and insignificant.
- No Action: No changes or impacts would occur under the No Action alternative.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Buildings 654 and 1458: The demolition of these buildings could result in short-term impacts that may result in increased soil erosion by wind or water from ground-disturbing activities and the effects of soil exposure. Erosion impacts would likely be negligible, as the contractor would be required to follow standard erosion and sediment control mitigation measures. Such measures may include the use of silt fences and hay bales during rainy periods. Any exposed areas formed as a result of the demolition would be watered to prevent the mobilization of fugitive dust, until either some ground cover is put in place, or a new site is constructed. These areas have been previously disturbed and with erosion control measures in place. Impacts would be minor and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Renovate Buildings 325, 284, 151, 220, 230, 236, 332, and 333; Renovate and Construct Addition to Buildings 323 and 324; Construct Addition to Building 465: Renovation and additions associated with the proposed actions would not result in an impact to earth resources. These facilities are in previously disturbed areas and would not be removed so there is little potential for any soil to be exposed during the renovations of these facilities. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad: Impacts to earth resources during construction of the hot cargo pad would be negligible and localized to a small area. The pad would be composed of a 3,200 square foot paved surface that would be built in an undisturbed area next to an area that has been previously disturbed. The area may require some slight grading, but should not require or generate any cut or fill since the area is relatively flat. The construction of this proposed action could result in short-term impacts that may result in increased soil erosion by wind or water from ground-disturbing activities and the effects of soil exposure. Erosion impacts would likely be negligible, as the contractor would be required to follow standard erosion and sediment control mitigation measures. Such measures may include the use of silt fences and hay bales during rainy periods. Any exposed areas formed as a result of construction would be watered to prevent the mobilization of fugitive dust until the project is complete and the pad is paved. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Construct FATS: Impacts to earth resources would be minor and localized to the construction site of the FATS. The area may require some slight grading, but is relatively flat and would not require or generate any cut or fill since the area is relatively flat. Some temporary short-term impacts such as increased soil erosion by wind or water from ground-disturbing activities and soil exposure may occur, but would be negligible because the contractors would be required to utilize standard erosion and sediment control mitigation measures. These measures may include the use of silt fences and hay bales during rainy periods. Any exposed areas formed as a result of construction would be watered to prevent the mobilization of fugitive dust until the project is complete. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Upgrade Primary Missile Route (Central Avenue): The resurfacing and maintenance of this base road would not impact earth resources. The area has been previously disturbed, and no

new disturbances would occur as a result of the proposed action to upgrade the roadway. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

4.5. Air Quality

An impact to air quality would be considered major if it would result in one or more of the following:

- Increase ambient air pollution above any NAAQS
- Contribute to an existing violation of any NAAQS
- Interfere with or delay timely attainment of NAAQS
- Impair visibility within any federally mandated Prevention of Significant Deterioration (PSD) Class I area

With respect to the General Conformity Rule, impacts to air quality would be considered significant if emissions increased a non-attainment or maintenance area's emissions inventory by 10 percent or more for individual non-attainment pollutants, or exceeded de minimus threshold levels established in 40 CFR 93.153(b). A conformity analysis is not required in an attainment area.

4.5.1. Proposed Actions

Zone 1: South of Missile Drive

Demolish Buildings 841, 945, 949, 1037, 1200, and 1260: Air contaminants generated by the demolition activity and the movement of associated heavy equipment during the proposed demolition activities would be short-term, temporary, and occur in a localized area. Pollutants generated by the proposed actions would include particulate matter, vehicle emissions, and increased wind-borne dust. Erosion control measures would be implemented for these proposed actions to prevent generation of fugitive dust. Within the demolition sites, appropriate erosion control measures (ECM) would be identified that would provide optimum soil suppression, which typically utilize (but are not limited to) water suppression strategies during demolition, construction, and renovation by wetting areas of soil disturbance and debris. In addition to identifying the type of surface treatment, an alternative ECM would be identified in case the original is found to be ineffective. To reduce the potential impact, the contractor would perform the following recommended construction practices: cover stored material that may be a source of dust; turn off vehicle and equipment engines when not in direct use in order to reduce exhaust emissions; limit vehicular speeds in the construction area to 15 mph to minimize dust, where practicable; and cover truck beds when transporting construction or paving materials to or from the site. Vehicular and demolition equipment exhaust would be a source of pollutant emissions, but would have a negligible impact on air quality. The emissions from these demolition activities and workers traveling to and from the site are minor compared to the total existing vehicular emissions in the area. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Upgrade Primary Missile Route (Missile Drive): Air contaminants generated by the construction activity and the movement of associated heavy equipment during the proposed maintenance activities would be short-term, temporary, and occur in a localized area. Contaminants generated by the proposed actions would be limited to construction equipment and vehicle emissions because the roadway is already paved. Vehicular and demolition

equipment exhaust would have a negligible impact on air quality. The emissions from these demolition activities and workers traveling to and from the site are minor compared to the total existing vehicular emissions in the area. Best management practices (BMPs) are recommended for the reduction of particulate and other pollutant emissions during typical construction operations. To reduce the potential impact, the contractor would perform the following recommended construction practices: cover stored material that may be a source of dust; turn off vehicle and equipment engines when not in direct use in order to reduce exhaust emissions; limit vehicular speeds in the construction area to 15 mph to minimize dust, where practicable; and cover truck beds when transporting construction or paving materials to or from the site. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Buildings 654 and 1458; Renovate Buildings 325, 284, 151, 220, 230, 236, 332, and 333; Renovate and Construct Addition to Buildings 323 and 324; Construct Addition to Building 465: Air contaminants generated by the demolition and renovation activities and the movement of associated heavy equipment during the proposed demolition and renovation activities would be short-term, temporary, and occur in a localized area. Contaminants generated by the proposed actions would include particulate matter, vehicle emissions, and increased wind-borne dust. Erosion control measures are to be implemented for this proposed action to prevent generation of fugitive dust. Within the demolition and renovation sites, appropriate ECM would be identified that would provide optimum soil suppression, which typically utilize (but are not limited to) water suppression strategies during demolition, construction, and renovation by wetting areas of soil disturbance and debris. In addition to identifying the type of surface treatment, an alternative ECM would be identified in case the original is found to be ineffective. To reduce the potential impact, the contractor would perform the following recommended construction practices: cover stored material that may be a source of dust; turn off vehicle and equipment engines when not in direct use in order to reduce exhaust emissions; limit vehicular speeds in the construction area to 15 mph to minimize dust, where practicable; cover truck beds when transporting construction or paving materials to or from the site; and water exposed soil areas twice a day during dry periods. Vehicular and demolition equipment exhaust would be a source of pollutant emissions, but would have a negligible impact on air quality. The emissions from these demolition activities and workers traveling to and from the site are minor compared to the total existing vehicular emissions in the area. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad and FATS: Air contaminants generated by the construction and the movement of associated heavy equipment during the proposed construction activities would be short-term, temporary, and occur in a localized area. Contaminants generated by the proposed actions would include particulate matter, vehicle emissions, and increased wind-borne dust. Erosion control measures would be implemented for these proposed actions to prevent generation of fugitive dust. Within the construction sites, appropriate ECM would be identified that would provide optimum soil suppression, which typically utilize (but are not limited to) water suppression strategies during demolition, construction, and renovation by wetting areas of soil disturbance and debris. In addition to identifying the type of surface treatment, an alternative ECM would be identified in case the original is found to be ineffective. To reduce the potential impact, the contractor would perform the following recommended construction practices: cover

stored material that may be a source of dust; turn off vehicle and equipment engines when not in direct use in order to reduce exhaust emissions; limit vehicular speeds in the construction area to 15 mph to minimize dust, where practicable; cover truck beds when transporting construction or paving materials to or from the site; and water exposed soil areas twice a day during dry periods. Vehicular and construction equipment exhaust would be a source of pollutant emissions, but would have a negligible impact on air quality. The emissions from these construction activities and workers traveling to and from the site are minor compared to the total existing vehicular emissions in the area. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Upgrade Primary Missile Route (Central Avenue): Air contaminants generated by the upgrade activity and the movement of associated heavy equipment during the proposed maintenance activities would be short-term, temporary, and occur in a localized area. Pollutants generated by the proposed action would be limited to construction equipment and vehicle emissions because the roadway is already paved. Vehicular and demolition equipment exhaust would have a negligible impact on air quality. The emissions from these upgrade activities and workers traveling to and from the site are minor compared to the total existing vehicular emissions in the area. BMPs are recommended for the reduction of particulate and other pollutant emissions during typical construction operations. To reduce the potential impact, the contractor would perform the following recommended construction practices: cover stored material that may be a source of dust; turn off vehicle and equipment engines when not in direct use in order to reduce exhaust emissions; limit vehicular speeds in the construction area to 15 mph to minimize dust, where practicable; and cover truck beds when transporting construction or paving materials to or from the site. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

4.6. Water Resources

Impacts to water resources, including surface water, groundwater, wetlands, riparian areas, and wells, would be considered major in severity if:

- Water resource availability, quality, and beneficial uses are irreversibly diminished
- The action results in a reduction in water availability or interferes with a potable supply or water habitat
- The action creates or contributes to overdraft of groundwater or exceeds a safe annual yield of water supply sources
- The action results in an adverse effect on water quality or an endangerment to public health by creating or worsening adverse health hazard conditions
- Results in a threat or damage to unique hydrological characteristics
- Violates an established law or regulation that has been adopted to protect or manage water resources of an area

Impacts related to floodplain management include:

- Potential damage to structures located in the floodplain
- Changes to the extent, elevation, or other features of the floodplain as a result of flood protection measures or other structures being silted in or removed from the floodplain

Executive Order (EO) 11988, *Flood Plain Management*, and EO 11990, *Protection of Wetlands*, require federal agencies to avoid actions, to the extent practical, that will result in the location of facilities in floodplains and/or wetlands. Crossing floodplains or wetlands with overhead

transmission lines or burying pipelines in floodplains is often unavoidable. Most impacts to floodplains and wetlands can be mitigated.

4.6.1. Proposed Actions

Zone 1: South of Missile Drive

Demolish Buildings 841, 945, 949, 1037, 1200, and 1260: The proposed demolition worksites would be designed to control storm water runoff and detain water flow, if required, to adequately control managed storm water volume to prevent erosion and minimize impacts. A National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP), is necessary for projects greater than one acre in size, and requires the contractor to address erosion, runoff, and sediment control. The FEWAFB Storm Water Program Manager would determine parameters of a site-specific NPDES CGP. BMPs would be identified in the construction permit or in site-specific storm water control plans to identify concerns that might arise as a result of demolition activities. Sediment must remain in place on the demolition site as much as possible. The contractor must demonstrate that he/she is aware of potential problems from runoff and he/she is conducting his/her activities to minimize potential pollution transport. Once the demolitions are complete, if no new construction is scheduled to take place, replacing the once impervious surface with vegetation will reduce storm water flow and increase natural infiltration during rain events. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Upgrade Primary Missile Route (Missile Drive): The impacts to water resources for the proposed resurfacing of Missile Drive would be negligible because the proposed action would neither decrease nor increase the amount of impervious surface on the installation. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Buildings 654 and 1458; Renovate Buildings 325, 284, 151, 220, 230, 236, 332, and 333; Renovate and Construct Addition to Buildings 323 and 324; Construct Addition to Building 465: The proposed demolition and renovation sites would be managed to control storm water runoff and detain water flow, if required, to adequately control storm water volume to prevent erosion and minimize impacts. A NPDES CGP is necessary for projects greater than one acre in size, and requires the contractor to address erosion, runoff, and sediment control. The FEWAFB Storm Water Program Manager would determine parameters of a site-specific CGP. BMPs would be identified in the construction permit or in site-specific storm water control plans to identify concerns that might arise as a result of construction activities. Sediment must remain in place on the construction site as much as possible. The contractor must demonstrate awareness of potential problems from runoff and conduct activities in a manner to minimize potential pollution transport. Once the projects are complete, if no new construction is scheduled to take place, replacing the once impervious surface with vegetation will reduce storm water runoff and increase natural infiltration during rain events. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad and FATS: The proposed construction sites would be managed to control storm water runoff and detain water flow, if required, to adequately control storm water volume to prevent erosion and minimize impacts. A NPDES CGP is necessary for projects greater than one acre in size, and requires the contractor to address erosion, runoff, and sediment control. The FEWAFB Storm Water Program Manager would determine parameters of a site-specific Construction General Permit. BMPs would be identified in the construction permit or in site-specific storm water control plans to identify concerns that might arise as a result of construction activities. Sediment must remain in place on the construction site as much as possible. The contractor must demonstrate that he is aware of potential problems from runoff and conduct activities in a manner to minimize potential pollution transport. Once the demolitions are complete, if no new construction is scheduled to take place, replacing the once impervious surface with vegetation will reduce storm water runoff and increase natural infiltration during rain events. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Upgrade Primary Missile Route (Central Avenue): The impacts to water resources for the proposed resurfacing of Central Avenue would be negligible because the proposed action would neither decrease nor increase the amount of impervious surface on the installation. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

4.7. Vegetation and Wildlife

An impact to biological resources would be considered major if the proposed action would:

- Affect a threatened or endangered species
- Substantially diminish habitat for a plant or animal species
- Substantially diminish a regionally or locally important plant or animal species
- Interfere substantially with wildlife movement or reproductive behavior
- Result in a substantial infusion of exotic plant or animal species
- Destroy, lose, or degrade wetlands (as defined by Section 404 of the Clean Water Act)
- Fill a wetland

4.7.1. Proposed Actions

Zone 1: South of Missile Drive

Demolish Buildings 841, 945, 949, 1037, 1200, and 1260; Upgrade Primary Missile Route (Missile Drive): These areas have all been previously disturbed, and are located in areas actively used by base operations. No further impacts would occur as a result of any of the proposed building demolitions and road upgrades. Existing vegetation around these sites would remain the same, and any exposed soil resulting from demolition activities would be replanted with native grasses and vegetation to prevent erosion from occurring from wind and storm water. There are no threatened or endangered species located in the vicinity of the proposed actions. The two listed species, Preble's meadow jumping mouse and the Colorado butterfly plant, are located in the southern portions of the base along Crow Creek, Diamond Creek, and the unnamed tributary. The demolition activities of the proposed actions would not impact these species. In addition, demolition would be timed to minimize any possible impacts to potential

habitat for migratory/seasonal birds and their nesting sites. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Buildings 654 and 1458; Renovate Buildings 325, 284, 151, 220, 230, 236, 332, and 333; Renovate and Construct Addition to Buildings 323 and 324; Construct Addition to Building 465: These areas have all been previously disturbed, and are located in areas actively used by base operations. No further impacts would occur as a result of any of the proposed building demolitions. Existing vegetation around these sites would remain the same, and any exposed soil resulting from project activities would be planted with native grasses and vegetation if no new construction is planned to prevent erosion from occurring from wind and storm water. There are no threatened or endangered species located in the vicinity of the proposed actions. The two listed species, Preble's meadow jumping mouse and the Colorado butterfly plant, are located in the southern portions of the base along Crow Creek, Diamond Creek, and the unnamed tributary. The proposed actions would not impact these species. In addition, demolition would be timed to minimize any possible impacts to potential habitat for migratory/seasonal birds and their nesting sites. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad and FATS: Construction of these proposed actions would result in the long-term direct loss of a relatively small amount of urban wildlife habitat and prairie grassland. Existing vegetation around these construction sites are expected to remain the same, and any exposed soil resulting from the construction activities would be planted with native grasses and vegetation. Short-term displacement of wildlife may occur during construction activities; however, once construction activities have been completed, species tolerant of urban development would likely return to the remaining habitat. There are no threatened or endangered species located in the vicinity of the proposed actions. The two listed species, Preble's meadow jumping mouse and the Colorado butterfly plant, are located in the southern portions of the base along Crow Creek, Diamond Creek, and the unnamed tributary. The proposed actions would not impact these species. In addition, projects would be timed to minimize any possible impacts to potential habitat for migratory/seasonal birds and their nesting sites. Impacts would be minor and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Upgrade Primary Missile Route (Central Avenue): This area has been previously disturbed, and no further impacts would occur as a result of the proposed road upgrade. Existing vegetation around this site would remain the same. The two listed species Preble's meadow jumping mouse and the Colorado butterfly plant are located in the southern portions of the base along Crow Creek, Diamond Creek, and the unnamed tributary. The proposed action would not impact these species. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

4.8. Health and Safety

An impact to safety would be major if it would result in one or more of the following:
- In an increase in risk to AF operations, the public, and property
- In an increase in the likelihood of accidents, or other related mishaps, that negatively affects AF operations, the public, or property over baseline conditions

4.8.1. Proposed Actions

Zone 1: South of Missile Drive

Demolish Buildings 841, 945, 949, 1037, 1200, and 1260; Upgrade Primary Missile Route (Missile Drive): All personnel shall follow OSHA and AF regulations to ensure safety on the work site. There would be no impacts related to human health and safety from the proposed action area during demolition and anticipated site use thereafter. Impacts would be negligible and insignificant.
- No Action: No changes or impacts would occur under the No Action alternative.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Buildings 654 and 1458; Renovate Buildings 325, 284, 151, 220, 230, 236, 332, and 333; Renovate and Construct Addition to Buildings 323 and 324; Construct Addition to Building 465: All personnel shall follow OSHA and AF regulations to ensure safety on the work site. There would be no impacts related to human health and safety from the proposed action area during demolition, renovation, and anticipated site use thereafter. Impacts would be negligible and insignificant.
- No Action: No changes or impacts would occur under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad and FATS; Upgrade Primary Missile Route (Central Avenue): All personnel shall follow OSHA and AF regulations to ensure safety on the work site. Possible health and safety concerns for workers in Zone 3 may include contact with UXO. All personnel would receive UXO training before being allowed entry into the work area. There would be no impacts related to human health and safety from the proposed action area during construction and anticipated site use thereafter. Impacts would be negligible and insignificant.
- No Action: No changes or impacts would occur under the No Action alternative.

4.9. Outdoor Recreation

An impact to outdoor recreation would be considered major if one or more of the following would result:

- An adverse deterioration of a recreational facility (either a land resource, water resource, or a recreation access facility)
- The elimination of a recreation facility, such as a running trail, golf course, athletic court, sports field, park, playground, marina, or a beach

4.9.1. Proposed Actions

Zone 1: South of Missile Drive

Demolish Buildings 841, 945, 949, 1037, 1200, and 1260; Upgrade Primary Missile Route (Missile Drive): The proposed actions would not impact areas used for outdoor recreation. The building demolitions and infrastructure improvements would not restrict access to recreational areas or activities. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Buildings 654 and 1458; Renovate Buildings 325, 284, 151, 220, 230, 236, 332, and 333; Renovate and Construct Addition to Buildings 323 and 324; Construct Addition to Building 465: The proposed actions would not impact areas used for outdoor recreation. The building demolitions and facility renovations would not restrict access to recreational areas or activities. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad and FATS; Upgrade Primary Missile Route (Central Avenue): The proposed action would not impact areas used for outdoor recreation. The building demolitions and infrastructure improvements would not restrict access to recreational areas or activities. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

4.10. Cultural and Archaeological Resources

An affect on historic properties and/or archaeological resources would be considered adverse if it resulted in one or more of the following:

- Physical destruction, damage, or alteration of all or part of the property
- Physical destruction, damage, alteration or removal of items from archaeological contexts without a proper mitigation plan
- Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register of Historic Places
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting
- Neglect of a property resulting in its deterioration or destruction
- Transfer, lease, or sale of the property (36 CFR 800.9[b]) without a proper data recovery plan

4.10.1. Proposed Actions

Zone 1: South of Missile Drive

Demolish Buildings 841, 945, 949, 1037, 1200, and 1260; Upgrade Primary Missile Route (Missile Drive): Generally, buildings must be 50 years old to be eligible for the National Register, unless they have exceptional significance. Demolition of these facilities and the

upgrade of Missile Drive would not have any impact on the cultural and archaeological resources on FEWAFB. The buildings on the proposed demolition list were all built between 1952 and 1973. The earliest buildings (841, 945, 949, 1200, and 1037) will require a formal determination of eligibility before demolition can be considered. Buildings 1260 (1973) and 1458 (1970) are only +/- 35 years old. If, during demolition of the proposed facilities, any potential cultural or archaeological resource is uncovered, work would stop and the Base Historic Preservation Officer (BHPO) would be contacted in accordance with the ICRMP (2004). Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Buildings 654 and 1458; Renovate Buildings 325, 284, 151, 220, 230, 236, 332, and 333; Renovate and Construct Addition to Buildings 323 and 324; Construct Addition to Building 465: Generally, buildings must be 50 years old to be eligible for the National Register, unless they have exceptional significance. Demolition and renovation of these facilities would not have any impact on the cultural and archaeological resources on FEWAFB. Building 1458 was constructed in 1970 and is not unique nor does it exhibit any exceptional significance. Building 654 is an obsolete piece of equipment that is no longer in use, and does not qualify for listing on the National Register. Buildings 284, 151, the dormitories, and buildings 332 and 333 are historic facilities. Renovation plans would be designed to meet the Secretary of the Interior's Standards for Rehabilitation and would be coordinated with the Wyoming SHPO. If, during demolition and renovation of the proposed facilities, any potential cultural or archaeological resource is uncovered, work would stop and the BHPO would be contacted in accordance with the ICRMP (2004). Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad and FATS; Upgrade Primary Missile Route (Central Avenue): Numerous surveys have been conducted on FEWAFB, and the proposed construction sites were found to be clear of cultural resources. Construction of these facilities would not have any impact on the cultural and archaeological resources on FEWAFB. If, during construction of the proposed actions, any potential cultural or archaeological resource is uncovered, work would stop and the BHPO would be contacted in accordance with the ICRMP. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

4.11. Solid Waste

An impact to solid waste is considered major if it results in an increase in solid waste such that it overwhelms local landfills to a crisis situation.

Major sanitary sewer impacts would include the following:

- Additional inflow and infiltration and increased loads on the Waste Water Treatment Plant (WWTP) that cannot be adequately treated
- Changes in waste water composition that would alter WWTP processes or consistently cause upsets of the WWTP

4.11.1. Proposed Actions

Zone 1: South of Missile Drive

Demolish Buildings 841, 945, 949, 1037, 1200, and 1260; Upgrade Primary Missile Route (Missile Drive): The proposed building demolitions and infrastructure upgrades would increase the amount of waste generated. This waste would be considered construction or demolition waste and any disposal actions would be required to be handled by appropriately classified landfills. According to a study by the Florida Center for Solid and Hazardous Waste Management, demolitions of non-residential buildings generate an average of 173 lbs/ft^2. Using this factor, the proposed demolitions combined would generate approximately 6,936.8 tons of waste for a combined square footage of 80,194 ft^2. Due to the time of construction of the buildings (prior to restrictions on lead and asbestos containing construction materials), there are asbestos and lead containing materials present in the buildings. Any asbestos present that is friable, or with the potential to become friable, in the buildings would have to be abated prior to any demolition actions. Lead containing materials in the buildings would need to be evaluated and quantified (usually with a Toxicity Characteristic Leaching Procedure [TCLP]). Any lead containing material greater than 5.0 mg/L would require handling and disposal as a hazardous waste. Amounts less than 5.0mg/L of lead may be disposed of in a properly classified landfill. The base Asbestos Operating Plan and Lead Management Plan outline proper management of asbestos containing material (ACM) and lead. Landfills in the area will accept lead and asbestos containing demolition or construction material that meet disposal standards. To be accepted at the landfill, asbestos must be contained or non-friable and lead must be less than 5.0 gm/L. The Happy Jack Landfill in Cheyenne could handle some quantities of demolition or construction debris on a case-by-case basis; however, Happy Jack Landfill is approaching its overall capacity and is sensitive to large waste volumes that would shorten its service life. In general, large volumes of waste may not be accepted at the Happy Jack Landfill and would have to be transported to another landfill. In reasonable proximity to the base, a county landfill in Ault, Colorado can accommodate demolition and construction debris from FEWAFB in large volumes. They will accept lead and asbestos containing demolition and construction debris that meet disposal standards. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Buildings 654 and 1458; Renovate Buildings 325, 284, 151, 220, 230, 236, 332, and 333; Renovate and Construct Addition to Buildings 323 and 324; Construct Addition to Building 465: The proposed building demolitions and renovations would generate increased volumes of waste. This waste would be considered construction or demolition waste and any disposal actions would be required to be handled by appropriately classified landfills. According to a study by the Florida Center for Solid and Hazardous Waste Management, demolitions of non-residential buildings generate an average of 173 lbs/ft^2. Using this factor, the proposed demolitions combined would generate approximately 6,936.8 tons of waste for a combined square footage of 80,194 ft^2. Non-residential wood frame construction activities generate approximately 4.02 lbs/ft^2; however, the renovations would be expected to generate waste at a much lower rate. Due to the time of construction of the buildings (prior to restrictions on lead and asbestos containing construction materials), there are asbestos and lead containing materials present in the buildings. Any asbestos present that is friable, or with the potential to become friable, in the buildings would have to be abated prior to any demolition actions. Lead containing materials in the buildings would need to be determined and quantified (usually with a Toxicity Characteristic Leaching Procedure [TCLP]). Any lead containing material greater than

5.0 mg/L would require handling and disposal as a hazardous waste. Amounts less than 5.0mg/L of lead may be disposed of in a properly classified landfill. The base Asbestos Operating Plan and Lead Management Plan outlines proper management of asbestos containing material (ACM) and lead. Landfills in the area will accept lead and asbestos containing demolition or construction material that meet disposal standards. To be accepted at the landfill asbestos must be contained or non-friable and lead must be less than 5.0 gm/L. The Happy Jack Landfill in Cheyenne could handle some quantities of demolition or construction debris on a case-by-case basis; however, the Happy Jack Landfill is approaching its overall capacity and is sensitive to large waste volumes that would shorten its service life. In general, large volumes of waste may not be accepted at the Happy Jack Landfill and would have to be transported to another landfill. In reasonable proximity to the base, a county landfill in Ault, Colorado can accommodate demolition and construction debris from FEWAFB in large volumes. They will accept lead and asbestos containing demolition and construction debris that meet disposal standards. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad and FATS; Upgrade Primary Missile Route (Central Avenue): General new construction activities have the potential to generate quantities of solid waste that would require disposal in a qualified landfill. These wastes are usually a very small percentage of what would be expected from a building demolition. It is estimated that waste generated from construction activities would be less than 6 lbs/ft^2 for the FATS facility. This amount of solid waste would have a negligible impact on local or adjacent landfill capacity. The hot cargo pad and upgrade of Central Avenue would likely not generate soil or gravel residue from resurfacing and grading actions, which would be recycled/reused on base. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

4.12. Hazardous Materials and Waste

Impacts to hazardous materials management would be considered major if the proposed action:

- Resulted in noncompliance with applicable federal and state regulations
- Increased the amounts generated or procured hazardous materials beyond current permitted capacities or management capabilities

Impacts to health, safety, and pollution prevention would be considered major if the proposed action results in worker, resident, or visitor exposure to hazardous substances.

Impacts to the IRP would be considered major if the proposed action:

- Disturbed, created, or contributed to contamination at a site resulting in potential adverse effects to human health or the environment
- Caused regulatory non-compliance

4.12.1. Proposed Actions

Zone 1: South of Missile Drive

Demolish Buildings 841, 945, 949, 1037, 1200, and 1260: These buildings are known to contain asbestos containing materials and lead-based paint which must be abated and disposed

of according to federal, state, and local government statutes and regulations. If any hazardous materials are subsequently identified during the demolition activities work would stop until a course of action is determined by the 90th CES/CEV. No maintenance of construction equipment would be conducted on-site, minimizing the potential for spills or direct contact with petroleum, oil, or lubricant. Equipment and vehicles parked overnight, or left for lengthy periods on-site, would be fitted with drip pans. There would be negligible impacts related to hazardous and toxic materials/wastes from the demolition activities. All material would be handled per appropriate guidance. The avoidance of spills, and their treatment in the event of an accident, would be addressed through existing pollution prevention, spill response, and air quality regulations. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Upgrade Primary Missile Route (Missile Drive): No maintenance of construction equipment would be conducted on-site, minimizing the potential for spills or direct contact with petroleum, oil, or lubricant. Equipment and vehicles parked overnight, or left for lengthy periods on-site, would be fitted with drip pans. There would be negligible impacts related to hazardous and toxic materials/wastes from the Missile Drive area upgrade. All material would be handled per appropriate guidance. The avoidance of spills, and their treatment in the event of an accident, would be addressed through existing pollution prevention, spill response, and air quality regulations. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Buildings 654 and 1458; Renovate Buildings 325, 284, 151, 220, 230, 236, 332, and 333; Renovate and Construct Addition to Buildings 323 and 324; Construct Addition to Building 465: The demolition candidates are known to contain asbestos containing materials and lead-based paint which must be abated and disposed of according to federal, state, and local government statutes and regulations. If any hazardous materials are subsequently identified during the demolition activities, work would stop until a course of action is determined by the 90th CES/CEV. The facilities being renovated would comply with AF policy and program requirements associated with hazardous materials as described in AFI 32-7086, which provide guidelines for the handling and management of hazardous materials to ensure compliance with federal, state, and local laws. The avoidance of spills, and their treatment in the event of an accident, would be addressed through existing base pollution prevention, spill response, and air quality plans. These plans address and specify procedures to be followed should previously undocumented materials be required at these facilities. The materials transported to these facilities must be shipped in compliance with Department of Transportation (DOT) hazardous materials regulations, and all users are responsible for complying with DOT hazardous materials regulations. Releases of hazardous materials above reportable quantities are reported to the EPA. No maintenance of transportation equipment would be conducted on-site, minimizing the potential for spills or direct contact with petroleum, oil, or lubricant. Equipment and vehicles parked overnight, or left for lengthy periods on-site, would be fitted with drip pans. There would be negligible impacts related to hazardous and toxic materials/wastes from the construction activities. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad: The proposed hot cargo pad would provide storage/parking for transient conventional munitions and low level radiation. Air Force policy and program

requirements associated with hazardous materials as described in AFI 32-7086 provide guidelines for the handling and management of hazardous materials to ensure compliance with federal, state, and local laws. There would not be any hazardous wastes generated at this site. The avoidance of spills, and their treatment in the event of an accident, would be addressed through existing pollution prevention, spill response, and air quality regulations. These plans address and specify procedures to be followed should previously undocumented materials be required at the hot cargo pad. The materials transported to the hot cargo pad must be shipped in compliance with Department of Transportation (DOT) hazardous materials regulations, and all users are responsible for complying with DOT hazardous materials regulations. Releases of hazardous materials above reportable quantities are reported to the EPA. UXO clearance is required and IRP investigations must be completed prior to construction. No maintenance of transportation equipment would be conducted on-site, minimizing the potential for spills or direct contact with petroleum, oil, or lubricant. Equipment and vehicles parked overnight, or left for lengthy periods on-site, would be fitted with drip pans. There would be negligible impacts related to hazardous and toxic materials/wastes from the construction activities. All material would be handled per appropriate guidance. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Construct FATS: The proposed FATS would contain designated areas for the storage of hazardous materials. Air Force policy and program requirements associated with hazardous materials as described in AFI 32-7086 provide guidelines for the handling and management of hazardous materials to ensure compliance with federal, state, and local laws. Hazardous wastes generated in this facility would be managed by FEWAFB. The specific impacts would be insignificant. Materials and quantities are unknown at this time. The avoidance of spills, and their treatment in the event of an accident, would be addressed through existing pollution prevention, spill response, and air quality regulations. These plans address and specify procedures to be followed should previously undocumented materials be required at the FATS. UXO clearance is required and IRP investigations must be completed prior to construction. Maintenance of construction equipment would not be conducted on-site, minimizing the potential for spills or direct contact with petroleum, oil, or lubricant. Equipment and vehicles parked overnight, or left for lengthy periods on-site, would be fitted with drip pans. There would be negligible impacts related to hazardous and toxic materials/wastes from construction. All material would be handled per appropriate guidance. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Upgrade Primary Missile Route (Central Avenue): No maintenance of construction equipment would be conducted on-site, minimizing the potential for spills or direct contact with petroleum, oil, or lubricant. Equipment and vehicles parked overnight, or left for lengthy periods on-site, would be fitted with drip pans. There would be negligible impacts related to hazardous and toxic materials/wastes from the Central Avenue area upgrade. All material would be handled per appropriate guidance. The avoidance of spills, and their treatment in the event of an accident, would be addressed through existing pollution prevention, spill response, and air quality regulations. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

4.13. Infrastructure

Effects on infrastructure are considered in terms of increases in demands on systems and the ability of existing systems to meet those demands. Potential effects to the environment could occur if the existing systems are insufficient to handle the increased demands requiring

construction and operation of a new system that may affect the environment. Utility demands include both construction and operations usage. Utility demands during the operations phase are based on the additional facility square footage and personnel requirements for any proposed action. Individual segments that comprise the totality of the infrastructure are discussed below.

Major effects on the potable water system could include:
- Reductions in potable water availability
- Disruption of potable water distribution systems
- Changes in water demands that affect regional potable supplies
- Negative effects on water quality due to contaminants generated by the proposed action or alternatives

Severity of impacts criteria for storm water conveyance systems would include:
- Flow obstructions and increases to the storm water drainage system
- Accelerated deterioration of the storm water drainage system
- Long-term interruptions of storm water drainage system components

Severity of impacts on the electrical systems would include:
- Changes in regional electricity demands requiring major new components such as transmission lines, transformers, and substations
- Long-term disruptions in available electrical services

Severity of impacts criteria for the heating and cooling system include:
- Increases in demand for heating and cooling above currently available capacities
- Long-term interruptions in heating and cooling capacities and availability

Liquid fuel systems would pose major effects to the environment if there would be:
- Unsafe, inadequate, or non-compliant temporary or long-term storage or distribution systems
- Unreliable distribution of liquid fuels that cannot meet the mission and support requirements

4.13.1. Proposed Actions

Zone 1: South of Missile Drive

Demolish Buildings 841, 945, 949, 1037, 1200, and 1260; Upgrade Primary Missile Route (Missile Drive): The proposed demolition of the facilities is not expected to impact or adversely affect the infrastructure resources on the installation. These facilities are currently either not in use or going to have their functions located elsewhere, therefore negating change in infrastructure usage. Impacts would be negligible and insignificant.
- No Action: No changes or impacts would occur under the No Action alternative.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Buildings 654 and 1458; Renovate Buildings 325, 284, 151, 220, 230, 236, 332, and 333; Renovate and Construct Addition to Buildings 323 and 324; Construct Addition to Building 465: The proposed demolitions and renovations would not adversely impact the infrastructure resources on the installation. Adequate infrastructure exists to support the

facilities being renovated, and any additional utility connections can be linked to existing systems already in place at the proposed site. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad and FATS; Upgrade Primary Missile Route (Central Avenue): The proposed construction and upgrades would not adversely impact the infrastructure resources on the installation. Adequate infrastructure exists to support the FATS facility, and any additional utility connections can be linked to existing systems adjacent to the proposed sites. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

4.14. Transportation

Impacts to transportation are evaluated with respect to the potential for:

- Disruption or improvement of current transportation patterns and systems
- Deterioration or improvement of existing levels of service
- Changes in existing levels of safety
- Disruption and deterioration of airfield activities

4.14.1. Proposed Actions

Zone 1: South of Missile Drive

Demolish Buildings 841, 945, 949, 1037, 1200, and 1260; Upgrade Primary Missile Route (Missile Drive): A small increase in vehicular traffic would be expected to occur during the building demolitions and road improvements. This impact would be temporary and would not exceed the capacity of the existing roadway. Heavy machinery required for site preparation and trenching would be transported by trailer or flatbed to reduce impacts to area roads. For the road resurfacing project, short-term impacts may result from repaving and restricted traffic flow; however, this can be minimized by performing road improvements during non-peak traffic hours. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Buildings 654 and 1458; Renovate Buildings 325, 284, 151, 220, 230, 236, 332, and 333; Renovate and Construct Addition to Buildings 323 and 324; Construct Addition to Building 465: A small increase in vehicular traffic would be expected to occur during the building demolitions and renovations. This impact would be temporary and would not exceed the capacity of the existing roadway. Heavy machinery required for site preparation and trenching would be transported by trailer or flatbed to reduce impacts to area roads. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad and FATS; Upgrade Primary Missile Route (Central Avenue): A small increase in vehicular traffic would be expected to occur during the construction and road

improvement projects. This impact would be temporary and would not exceed the capacity of the existing roadway. Heavy machinery required for site preparation and trenching would be transported by trailer or flatbed to reduce impacts to area roads. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

4.15. Environmental Justice

Environmental Justice impacts are evaluated in terms of their direct and disproportionate effects on low-income and minority populations. The magnitude of potential impacts can vary greatly depending on the location and characteristics of the proposed actions.

4.15.1. Proposed Actions

Zone 1: South of Missile Drive

Demolish Buildings 841, 945, 949, 1037, 1200, and 1260; Upgrade Primary Missile Route (Missile Drive): There would be no disproportionate impacts on low-income and minority populations, employment, or income in the surrounding local communities. The proposed action of multiple building demolitions and road improvements would be wholly contained within the installation and would not affect any populations in the surrounding community. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 2: North of Missile Drive and South of Central Avenue

Demolish Buildings 654 and 1458; Renovate Building 325, 284, 151, 220, 230, 236, 332, and 333; Renovate and Construct Addition to Buildings 323 and 324; Construct Addition to Building 465: There would be no disproportionate impact on low-income and minority populations, employment, or income in the surrounding local communities. The proposed actions would be wholly contained within the installation and would not affect any populations in the surrounding community. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

Zone 3: North of Central Avenue

Construct Hot Cargo Pad and FATS; Upgrade Primary Missile Route (Central Avenue): There would no disproportionate impact on low-income and minority populations, employment, or income in the surrounding local communities. The proposed action of multiple facility constructions and road improvements would be wholly contained within the installation and would not affect any populations in the surrounding community. Impacts would be negligible and insignificant.

- No Action: No changes or impacts would occur under the No Action alternative.

5.0 SUMMARY OF CUMULATIVE IMPACTS

5.1. Cumulative Impacts

Cumulative impacts are those environmental impacts that result from the incremental effects of the proposed action when compounded by other past, present, or reasonably foreseeable future actions (40 CFR 1508.7).

The projects currently in planning and design phases for FEWAFB not addressed by this PEA are the storm water detention ponds and the military family housing privatization projects. The cumulative effects of the proposed actions, the storm water detention ponds, and the military family housing privatization project, when weighed collectively, would be negligible. Any cumulative effects would be temporary and short-term in duration and could be minimized by avoiding a large number of simultaneous construction, renovation, and demolition activities. The only potential impact of any significance would be the impact to solid waste resources. The PEA proposed demolition, renovation, and construction activities could potentially generate large volumes of waste and debris. The construction and renovations associated with the military family housing privatization project would also potentially contribute to solid waste generation. Adequate disposal sites for solid waste that cannot be recycled are available in the immediate area and region for all potential project site work.

The construction of the hot cargo pad and the FATS facility in Zone 3 would reduce the amount of open space on the installation. This impact would be minor due to the vast size of the remaining tracts of open space. In addition, this disturbance would be minor to the grassland habitat, as this natural vegetation community is not unique to the project area and is surrounded by thousands of acres of similar habitat.

In general, three areas with a large potential for impacts are cultural/historical, installation restoration sites, and the effect on present threatened and endangered species. If project activities do not significantly affect these areas of special concern, the activity would bypass significant potential impact for the project.

5.2. Irreversible and Irretrievable Commitment of Resources

Under NEPA, a review of significant irreversible and irretrievable effects that result from development of the proposed actions is required (40 CFR 1502.16). Irreversible commitments are those that cannot be reversed, except perhaps in the extreme long-term (e.g., fuel, wood, steel, labor, and non retrievable resources). Irretrievable commitments are those that are lost for a period of time over the short-term (e.g., forest productivity or timber loss).

Under development of the proposed action(s), irretrievable commitments of resources would occur from the use of land resources, electrical energy, fuel, and human labor. The greatest of the irretrievable resources would be the land upon which the hot cargo pad and the FATS facility would be developed. Other irreversible or irretrievable commitments of resources would include: a minimal amount of soil lost through either wind and water erosion during demolition, renovation, and construction activities; loss of road use on the Primary Missile Route (Missile Drive and Central Avenue) during infrastructure improvement; loss of operational productivity during renovations, additions, and new facility construction activity; a small loss of native vegetation; energy use for site demolition, renovation, and construction activities; and a moderate level of increased noise generated during construction activities.

Under the No Action alternative, no irreversible or irretrievable commitments of resources would occur. Therefore, there would be no impacts on this resource.

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6.0 LIST OF PREPARERS

Merrill, Mark
JM Waller Associates
Director Environmental Consulting

Clarkson, Robert
JM Waller Associates
Senior Environmental Scientist

Dunning, Daniel
JM Waller Associates
Environmental Scientist

Moyer, Robert
JM Waller Associates
Environmental Engineer

Jeter, Julie
JM Waller Associates
Wildlife Biologist

Scott, Terry
JM Waller Associates
Environmental Scientist

Schneider, Mike
JM Waller Associates
GIS Technician

Stutsman, Ellen
JM Waller Associates
Technical Editor

Correa, Alba
JM Waller Associates
Technical Editor

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7.0 PERSONS AND AGENCIES CONTACTED

Mr. Brian Kelly
U.S. Fish and Wildlife Service
4000 Airport Parkway
Cheyenne, WY 82001

Mr. Tom Johnson
U.S. Army Corp of Engineers
2232 Dell Range Boulevard, Suite 210
Cheyenne, Wyoming 82009-4942

Mr. Terry Cleveland
Wyoming Game and Fish Department
5400 Bishop Boulevard
Cheyenne, WY 82006-0001

Ms. Debbye Balcaen Lathrop
Laramie County Clerk
309 W. 20th Street
Cheyenne, WY 82001

Ms. Claudia Nissley
Wyoming State Historic Preservation Officer
2301 Central Avenue
Cheyenne, WY 82002

City of Cheyenne
2101 O'Neil Avenue, Room 310
Cheyenne, WY 82001

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8.0 REFERENCES

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Appendix A: Proof of Publication

Appendix B: Public and Agency Comments

APPENDIX C: Memorandum of Agreement